The Builder.

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The New Theatres in Paris.

THE completion, in Paris, of new theatres wherein novel methods of lighting and ventilation have been adopted, hasled to expectation that we should give some account of the arrangements, which are obviously of much importance to decision of questions of procedure in the future planning and general architecture of the class of buildings. Without being able at the moment to comply fully, we can at once afford some particulars which will be interesting.

It may be well first, for the information of those who may visit the French metropolis, to explain what are the theatres recently completed or in progress,—since some of the London morning journals have correspondents in Paris, who do not take trouble to be correct in names and identification of sites. Mr. Boucicault's recent letter moreover, in another morning paper, does not seem to us quite correct as to the number of new buildings actually completed.

The prolongation of the Boulevard Prince Eugène, north-westerly, to join the Boulevard du Temple at the northern end of the latter, near the Château d'Eau, has entailed the destruction of, we believe, six theatres which stood altogether, lining the eastern side of the boulevard within the short space required for the new opening. These theatres are or were the Théâtre du Cirque, the Théâtre de la Gaîeté, the Théâtre des Folies Dramatiques, the Théâtre des Funambules, the Théâtre des Délassemens Comiques, and the Théâtre du Petit Lazari. It is possible that we have named the Théâtre Lyrique or Historique, also, as one of the buildings to be destroyed. We are now informed however that the building on the Boulevard du Temple will remain, being only made to revert, from its later use as an opera-house, for which it has been considered ill-adapted, to something resembling its original destination, or to the provision of a home for one of the companies ejected from the neighbouring buildings. The new Théâtre Lyrique, which it is hoped will fulfil all the conditions of acoustics concerned in the effect of musical performances, is one of the buildings which we have to give some account of.

Besides the buildings completed, or which may have been commenced, in different quarters of Paris, in partial substitution for those now destroyed, there are at least two other works of theatrical architecture to be counted as of the current time, those of the new opera-house on the Boulevard des Capucines, in place of the building in the Rue Lepeletier; and the additions (not touching the *salle*) to the Théâtre Français, which include a new, a south, front to the *plaçe* recently formed between the Palais Royal and the Rue Richelieu, where the latter enters the Rue St. Honoré.

Of the seven theatres we have named as on the Boulevard du Temple, the theatre lately called Lyrique, and previously Historique, or Montpensier, is the most recent in date. Illustrations of it will be found in one of our early volumes, of about the time when the building was erected. The *salle* is remarkable for width, great in proportion to the other dimension measured from the proscenium to the boxes. The Théâtre du Cirque (sometimes called Cirque Impérial, as well as Cirque Olympique), which was next to the building last named, on the boulevard, was built about the year 1826, for Franconi, who succeeded the Astleys in the management of equestrian performances in Paris. Though retaining its name, it was lately devoted to ordinary theatrical entertainments, and was arranged accordingly. This building must not be confounded with the circus of which Mr. Hittorff was architect, Cirque Napoléon, Boulevard des Filles-du-Calvaire, which is on the same line of eastern boulevards, any more than with the circus, Cirque de l'Impératrice, of the Champs-Elysées, also a work of Mr. Hittorff. The Théâtre des Folies Dramatiques was built in 1830-1 on the site which was that of the original theatre *de l'Ambigu*, built in 1786 with an interior "de style gothique," and destroyed by fire in 1827. The new Théâtre des Folies Dramatiques, of which the building is now being roofed in, is in the Rue de Bondy, near the Marché aux Fleurs. The Théâtre des Délassemens Comiques on the boulevard, was built in 1841, occupying only three months in its construction. A building which preceded it, having been erected in 1815, was under the direction of Madame Saqui, and was celebrated for pantomime and rope-dancing. A previous building erected in 1768 was called at different times "Théâtre des Asscociés" and "Théâtre sans Prétention." The company of the Délassemens Comiques was to quit the boulevard on the 15th of April last; and it has we believe, since that time, found a home in the Rue de Provence, opposite the end of the Rue Lepeletier, in premises, altered for the purpose, which lately were in part the gallery of works of art, called the "Galerie des Arts-Unis." The Théâtre du Petit Lazari dated from 1821. Till 1830 it was a theatre of *Marionnettes*. We are not aware whether there is any new building in progress. The date of the Théâtre de la Gaîeté we have not at hand. This theatre had been celebrated for some time past, for the representation of "Le Courrier de Lyon," a drama which is still running at the new building, which is in the Rue du Caire, close by the Square des Arts-et-Métiers and leading out of the Boulevard de Sebastopol, Rive Droite.

When it became apparent that new theatres would have to be built, urgent applications were addressed to the Prefecture of the Seine, and the Prefecture of Police, in favour of remedying the insufficient ventilation and other defects of the existing buildings. Conditions of the construction were therefore imposed upon the directors of the new buildings. The ultimate effect of these stipulations was that the city of Paris was itself obliged to undertake the building of the two edifices, the Théâtre Lyrique, and the Cirque Olympique, or Impérial.

The new Théâtre Lyrique, and the Cirque or Théâtre Historique as the latter new building seems to be now generally called, stand on the quay on the right or northern bank of the Seine, their entrance fronts filling opposite sides of the Plaçe du Châtelet. Coming from the south across the Pont St. Michel, and the Pont au Change, the elegant fountain surrounded by trees, is in face; the Théâtre Lyrique is at the right, and the Circus or Théâtre Historique is to the left.*

The designs of the two theatres resemble one another in many of their main features. An open *loggia* in one building, in the story above the street, replaces the glazed windows of the other; the attic story is somewhat differently treated; and segmental heads to the entrance-doorways are substituted for semicircular: but the two buildings have a like form of roof-rovering, a vast segment carried by an attic, which last, in one or both of the buildings, is set-in from the main external walls. The effect of the whole from any distant point of view, is in simple truth, a vile blot on the picture; and we are assured it is impossible that the architect, Mr. Davioud, — who moreover shows by beautiful treatment of details in these as well as others of his works, his competency as artist-architect,—could have perpetrated uncontrolled such a combined eye-sore.* One building indeed there is, which is equally bad in the effect of its roof, and equally pernicious in a prospect of its quarter of Paris; we mean the Palais de l'Industrie; which nevertheless, equally with the theatres, has remarkable beauty in many of its details. The details in the theatres, minute in their treatment like those generally of the modern French school, enter little into the effect from the opposite side of the river. Also, as the Cirque is a somewhat longer building than the Théâtre Lyrique, the spectator seems to feel that symmetry was intended, and that even that attempt has failed. When the first impression is that of a *failure*, what can be the effect of any work of *art?* Some considerable time after the roofing had been seemingly finished, the effect was again deteriorated by the addition of a small louvre or ventilator on the summit of each building. This feature, it was impossible to help thinking, was so placed, and left undecorated, in pure listlessness as to the power of making such an effect as was that of the roof, any better or any worse. In fact, something like the mistake in the Westminster Palace, was made: the architect was set to work; and the buildings were commenced, before a commission to which we shall hereafter refer, had finished its labours; thus, certain *conduits* which had been provided for one method of ventilation, were eventually demolished. The critics in the French press have been by no means satisfied with the flanks of the theatres, those fronting the Seine, but attribute the result to the shops, which it was considered by the City could not be spared from rental. In such view of the matter, we consider these authorities entirely mistaken. Even shops might have been treated without great detriment to architectural effect; and the tendency to destruction of such effect by sign-boards, like what is manifested on the Boulevard de Sebastopol, might have been repressed by one of those stipulations so easily enforced under the French municipal system. The Royal Exchange, London, at least before the fronts of many of the shops were allowed to be brought forward, showed what might be done; but marked features of recession and projection on plan, as of grouping and proportion of stories in elevation, are what are wanting to the otherwise admirable character of French architecture, as we have in these pages before observed.

The work of reconstruction of this part of Paris, comprised the rebuilding of the bridge in a slightly modified line of crossing, the removal of the Fontaine du Châtelet (which was effected bodily), and the arrangement of the area about it, planted with trees, and the erection of numerous buildings, to the north, and eastward to the Hôtel de Ville, nearly all of striking architectural character,

* The contributor to the columns of a morning journal quoted from in our last number, is not correct in some parts of his account of Paris. The line of the Boulevard de Sebastopol *does* deviate "from a straight line," as we have heretofore said. The deviation which takes place north of the bridge, has been instanced in proof of certain views opposed to the action of the municipality. Moreover, the July Column is not in the Plaçe du Châtelet, but in the Plaçe de la Bastille, which is far away eastward, at the end of the Rue St. Antoine; the Oratoire is not where the boulevard crosses the Rue de Rivoli, but is a quarter of a mile to the west, opposite the Louvre; and the churches of the Sorbonne and the Panthéon, and the Palace of the Luxembourg, not only will be, but are already, "laid open to public view," in accordance with the original plan for the improvements. We notice these slight errors lest any of our readers not acquainted with Paris, should find difficulty in making the matter in the *Morning Post*, which was in many respects excellent, harmonize with our own published particulars.

* Our principal illustrated contemporary, in one of his views of Paris meant to show the exact appearance of the quays subsequent to the time of erection of the two theatres, omitted those buildings altogether from his view.

and some of them profusely enriched with sculpture. The north side of the Théâtre Lyrique is seen from the Rue di Rivoli across the Avenue Victoria and the new square in which is the tower of St. Jacques-la-Boucherie.* The lines of route and traffic from the bridge, past the theatres, take such sharp turns round the planted area, that accidents must certainly occur. We have already once, or oftener, mentioned this great defect in the planning, which is exceptional in Paris to the general merit of new street lines. The angles should now be cut off, and the inner area made octagonal. This short notice of the street improvements connected with the theatres, would not be complete without mention of the alteration that has been made in that part of the quay (Quai de la Mégisserie, and Quai de Gèvres,) on which these buildings are situated, by raising the level. This is in continuation of work of the same kind which has been effected elsewhere along the river, and by which the highest rise of the water is now kept within the proper channel. A large number of old houses along the quay and north of it, thus have been destroyed to make room for the theatres, or in result of the alterations in the level. English visitors, staying a week in Paris, and writing their impressions, weep over the destruction of picturesque features, some of which too are interesting historically; but they should attach some value to the sanitary and other ameliorations, if not to the decorative aspect of the new streets and buildings. Whether as to the picturesque, or the matter of history and association, the value of the old streets and houses has been much overestimated. We speak with knowledge obtained after walking miles of such streets or alleys,—*ruelles* is the French word,—as there still are south of the Quai Conti, north and south of the Rue St. Antoine, north and east of the Panthéon, and elsewhere; and we say that it requires a much higher estimate of the interest and utility of ancient monuments, landmarks, and associations, than even we possess, to make possible the tolerance of quarters of a town so deficient in the prime requisites of habitations and streets, as are such as those quarters we have named. So bad, whilst so extensive and so numerous, are and have been those quarters, that to find fault whether with tendency to annihilation of them, or with the present duration in contrast with the magnificent frontages, betrays alike ignorance of the whole question for Paris, and that of improvement generally in towns and cities.

The recent elevation of level of the "Quai de la Mégisserie" appears to be the fourth or fifth operation of the kind, which has been found necessary thereat. The quay was first constructed in the year 1369, in the reign of Charles V., when it was called Quai de la Saunerie. This name was changed to that of Vallée de Misère, or Quai de la Poulaillerie, for one portion of the quay to the east, and to that of Quai de la Mégisserie for the portion ending where now is the Pont Neuf; and in 1529, under Francis the First, the whole seems to have been reconstructed. In 1769, under Louis XV., the quay again was repaired and enlarged, after which it acquired the name of Quai de la Ferraille, on account of the dealers in old iron and "batteries de cuisine" who established themselves there. One of the principal dealers in articles of the latter description, alluded to in one of our recent papers on cooking apparatus, is still attached to the same quarter. The Quai de la Ferraille became by day, the resort of *saltimbanques*, flower and bird sellers, and recruiting-parties; and by night a scene of disorder in which the knife is said to have often played its part. One of the most notorious places was a gambling-house called the "Biribi des Vertus." A wit of the time wrote of the uproar by day:—

> "Il est enjoint aux vieux *ferrailleurs*,
> D'aller porter leur vieux *fer ailleurs!*"

In the reign of Louis Philippe, or between 1833 and 1836, the Quai de la Ferraille was again reconstructed, and greatly improved, at a cost of 700,000 francs. At this time an archway which led from the river under the houses of the quay was removed. Lastly, in 1860, the roadway was raised so as to leave the old houses at eight or ten feet below the new level, and render necessary the demolition and reconstruction which is the work of the present year.

The system of lighting and ventilation which eventually determined structural arrangements of the two buildings that have been completed in the locality we have spoken of, was founded on a report, or reports, made by Messrs. Boussingault, Pelouze, and Dumas, and the Général Morin. These authorities, according to Mr. Devinck in the Corps Législatif (*Moniteur*, 28th June, 1861), stated that 8 to 10 cubic mètres of air per hour were necessary for each spectator, whilst there was no theatre in Paris answering those conditions. A number of the *Revue et Gazette des Théâtres*, of September, 1861, speaks of a report drawn up by General Morin, for the commission appointed by the Prefect of the Seine, and forming a thick volume; in which report, the fresh air required, and capable of being provided, was stated as 30 mètres for each spectator, in the course of each performance. The bulk of the matter of the reports, and the results of numerous experiments by General Morin, which extended to the subject of lighting of the stage and auditory, will doubtless be found in the *Comptes-Rendus* of the *Académie des Sciences*, and the *Annales du Conservatoire Impérial des Arts et Métiers*. The conclusions arrived at appear to have been turned to account in the Théâtre de la Gaîeté in the system there, of lighting, which is spoken of as the invention of Mr. Cusin, the architect of that new theatre.

Postponing any account of the plan and decorative details of the new theatres on the quay, we may say that the system of lighting and ventilation consists in what has been called "exclusive lighting," or like what is in use at the House of Commons, combined with the utilization of the heat in the roof-space which is above the glazed ceiling, as extracting force. The first application of the method of lighting, in Paris, was made in the *salle* of the *Corps Législatif* in February last. In that case, instead of the central chandelier, or *lustre*, there is in the ceiling, a central space of ground-glass, above which are numerous jets of gas backed by a large reflector. The light, when the arrangement was first adopted, was found to be much better than that of the old system. The question suggested is as to cost of gas. If we may credit one writer, the expense per night in one of the old theatres was one fourth what it is in the new building. But we imagine that the difference will be greatly reduced by application of the best forms of reflectors and after general study of the subject. In the Western Annex of the International Exhibition building is a new form of magneto-electrical apparatus, shown to be applicable to lighthouses; and in which, constant meeting of the charcoal points, and non-intermittence of the light, are fully attained. The ingenious machinery by which this is managed, would require longer explanation than might be adapted to this present article. One feature of the machine is the use of a small steam-engine, which turns a large wheel, on the periphery of which are placed the magnets. Mr. F. H. Holmes is the inventor. In fact, the whole subject of artificial lighting is in its infancy; and if we mistake not, the French will make something of Mr. Holmes's invention as well in the lighting of buildings and streets, as in their lighthouses, which are most assiduously looked after. As to another question in the application of the system of "exclusive lighting," a thermometer in the luminous chamber of the *salle* of the Corps Législatif has shown 90 degrees, centigrade scale, of heat, or equal to 194 Fahrenheit. Such heat would seem to involve danger, unless where there is special construction; an opinion similar to one which was freely expressed by the architect of the Houses of Parliament, when the method in question was adopted by the Commissioners of Works. In the Théâtre Lyrique, and in the Théâtre Historique (as we shall probably be right in now calling the circus), the architect has of course formed the roof-framing wholly of iron; and he has brought a large amount of constructive skill to this part of his task. What degree of heat is necessary in the case of the theatres, as motive power, we do not at present know.

One of the earliest proposals for the improved ventilation of theatres was that of Darcet, described as comprising admission of air, supplied from the basement, by numerous openings in the front of the boxes, and its escape by an opening in the roof, below which was the great chandelier, or *lustre*. This method, in principle, and in some details, therefore is the same as that of the London theatres. The defect of the system has been considered to be that it renewed only that portion of the air which was the least vitiated; and that, as inducing a current of sound from the stage to the ceiling, it was unfavourable to hearing and especially unsuited to opera-houses. As wrote Mr. About in *Le Constitutionnel*, "the public of the *orchestra* and the boxes obtain of music little, and breathe of bad air much." Darcet's arrangements it is said, were much improved upon by Mr. Charpentier, an architect, in the Théâtre de l'Opéra-Comique; but whatever the later improvement was, it has since been got rid of by one or other management of the theatre. It has been proposed to adopt the system of a downward current in theatres, with the opening of escape, or exhaustion, in front of the stage; but this has not been carried into effect in any building in Paris. The only improvement we can discover as having been made prior to the construction of the new buildings, was that in the *rampe*, or "float," for lighting the stage, which we described when it was first introduced at the Grand Opera-House. We attributed the suggestion of this arrangement to Mr. Lissajoux, to whom we were indebted for information; and Mr. About following the *Annales d'Hygiène* prefers the claim of the professor to the credit of the invention. Such credit General Morin in his report has omitted to accord, receiving himself whatever praise may be due for it. Mr. Lloyd's patented plan illustrated in our last number has points of difference from the French arrangement, originally described by us; but there is much in his arrangement that would be suggestive to the French, especially in connexion with the point, to which we referred at the time, the necessity of making the elevation of the reflector above the floor line of the stage, as slight and as sightly as possible. Mr. Lloyd's arrangement as shown and described* would allow the smoke and gaseous products of combustion to take their usual course, producing an effect which interferes with the view of the *scène* from the house, and perpetuating the inconvenience and prejudicial results to actors and singers. In the French arrangement, on the other hand, as noticed by us, the lights are completely encased; the front next the stage is not wire-gauze, but ground glass; and the ends of the tube or chamber have each attached to them at the sides of the stage, a perpendicular tube for the escape of the products of combustion from the chamber. What modifications in the form have been made in the new theatres, we are not yet aware. We have more to say, however, than can be pressed into one article.

* See p. 745, *ante*.

EXEUNT.

Bit by bit the cumbrous pile known as the Great Globe, in Leicester-square, is being removed: rib by rib its odd skeleton is disappearing; and in a very few days

> "The great globe itself,
> Yea, all which it inherit, shall dissolve;
> And, like this insubstantial pageant faded,
> Leave not a rack behind."

Will it leave behind the statue of George I., which formerly occupied the centre of the square? If not, it should be looked for, perhaps dug up, and replaced. This statue appears to have been the work of Van Nost, a sculptor from Mechlin, and was made for Canons, a residence of the Duke of Chandos. It was originally gilt. It should most certainly be reinstated. What is to be the after-fate of Leicester-square, formerly Leicester-fields? The enclosure of the "square" seems to have taken place very soon after 1700. The recent condition has been discreditable. Let us hope that improvement is in sight. The best thing that could be done would be to throw open the whole area, bordering a few walks with suitable trees. At any rate, keep it free of buildings. The present tendency, unluckily, is to fill up our open spaces,—a suicidal act. The railway stations, for example, should not have been admitted into the New-road and at Trinity Church.

Hungerford Market has disappeared. The buildings have been levelled, and a large area is opened to become the terminus, or, to speak more safely, a station of the Charing-cross Railway. The "Compensation cases" here must have been numerous. It is but thirty years since the then inhabitants of the site were paid and turned out; and now the market, with its penny ices, and its Hall of Clairvoyance (do we not remember Madlle. Prudence here before the days of scoundrelly Fosters?), gives place to more promising things. Even the bridge, with Mr. Bunning's towers, is changing its ways: it will cease to hang, and

* The word *square*, which is now French, means a space bounded by street, inclosed with railing or balustrade, and arranged as a garden, in fact has the same meaning as the designation of the London squares: the Paris squares however being much more ornately decorated, besides open to the public. The word *place* however may be retained in some instances where the open spaces have gardens in the centre, as in that of the Place or Square Louvois, perhaps from having been applied before the garden there was made.

send its chains to Clifton. And so one year blots out another.

The State-Paper Office is gone. Barry did his best to wipe out Soane; and, being gone, Scott follows up the game. Scott's sponge has yet to come.

The East-India House—Jupp improved by Cockerell—has had a longer innings than the other buildings we have named. It has gone out at the early age nevertheless of sixty-three years. Nothing remained when we saw it a few days ago, but the portico, with the younger Bacon's sculpture in the pediment; and by this time probably that also has disappeared. Charles Lamb, who left on the shelves there what he calls his true works, "filling some hundred folios," would not know the place. Offices, soundly built, are rising in its stead; but how long they will remain depends entirely upon accident. Talk of permanent buildings! We make but forms in a dissolving view.

CAPO DI MONTE PORCELAIN: NEAPOLITAN.

The breakfast-service of Capo di Monte porcelain belonging to Miss Burdett Coutts, now in the Loan Collection at South Kensington, ornamented with raised and coloured groups of heathen deities, in connexion with other specimens there of the same manufacture, has led several of our readers to seek particulars of it. Mr. Marryat has brought some together in his valuable "Collections towards a History of Pottery and Porcelain," easily accessible, but we will give a few notes on the subject for those who are unable to look them out for themselves. King Charles III. established the manufactory at Capo di Monte in 1736; and often worked there with his own hands. The interest he took in it is strikingly shown by a letter printed in the "Chatham Correspondence," dated 1760. This says that, during a fair held annually in the square before the king's palace, there was a shop for the sale of this china; and that a note was brought to the king daily of what was sold, with the names of purchasers, on whom he looked often favourably. When he afterwards left Naples and assumed the crown of Spain, he took away with him twenty-two persons acquainted with the manufacture, and founded an establishment in the gardens of the Palace of El Buen Retiro, near Madrid, the productions of which are well known.

Mr. Pettigrew has printed a letter in his "Memoirs of Nelson," wherein the great admiral mentions a visit to the "magnificent manufactory of china" at Capo di Monte; and how pleased he was to find, on ordering a few busts in china, and seeking to pay for them, that the king had directed whatever he chose should be delivered free of all cost. "It was handsome" of him, says Nelson.

The manufactory dwindled, and became extinct in 1821, when the early models were transferred to the Ginori factory at Doccia.

At the Ginori-Lisci stall in the International Exhibition, to which we referred in a recent number, there are some modern specimens of the ware, in the shape of cups and saucers with raised and coloured groups upon them; and others with handles in imitation of a branch of red coral,—a decoration, together with small coloured shells, often made use of in this manufacture; and constituting, indeed, its distinguishing beauty. The modern productions, however, are very inferior, both in modelling and colour, to the earlier works. At the stalls of some of the English manufacturers in the Exhibition there are imitations of the ware to which the same objection applies. There are two valuable ewers in the Loan Collection, modelled from shells, with their imitative red-coral handles, and ornamented in relief with smaller coloured shells adhering to the sides.

Specimens of the genuine ware are rare. The best collection, according to Marryat, is in the Royal Palace, at Portici, of which Lady Blessington gives a vivid description in her "Idler in Italy." Lady Blessington had herself at Gore House, hard by where the Exhibition now stands, some capital cups and saucers of the ware, as we well remember; and the mention of them brings back clearly to the mind's eye of the writer a *conversazione* in that well-appointed house, and a group of four standing at a small table in the drawing-room, talking of this very china. One of the four, holding a cup in his hand, and speaking moodily, is Prince Louis Napoleon, now Emperor of the French; and the incident is the more distinctly remembered, because within a very few hours afterwards he made his repulsed descent on Boulogne! The tea-cups have taken us into history, and we will not return.

EVIL EFFORTS AGAINST SANITARY IMPROVEMENTS.

In sanitary matters, as in others, there occur now and then reactions of opinion which, for a time, cause facts which have been established to be disputed, and, to some extent, discredited. Then discussions take place, which are not without their use; and eventually the truth is established on a surer basis than ever. Recently, an inquiry which has been made by the *Lancet* into the effects of railway travelling on health has caused the expression of a variety of opinions in various journals. Amongst other singular views, it has been stated that the pure air of the sea-shore is of little value as regards health; and one writer in an influential magazine states that impurities of air do not sensibly affect health, as is seen by the thousands who daily breathe impure air with impunity. It is said that the air of a crowded railway-carriage, which is so close that it is noxious and unpleasant to the senses, can do no harm; and that, although the air may in this way be tainted, "The rapid circulation of the air always suffices to keep up a due amount of oxygen; and, however oppressive the sensation of 'stuffiness' may be when windows of a crowded carriage are closed, the utmost physiological effect is a lowering of the respiration, and a consequent lowering of the vital functions, which immediately recover their activity on fresh air being admitted." The same views will, we suppose, apply to omnibuses, and to the crowded cabins of steam-packets, &c. It is admitted that there is a *lowering of the respiration, and a consequent lowering of the vital functions;* and, however high the scientific authority may be to the contrary, we cannot, in our common-sense view of the matter, consider such a state of air to be beneficial or even indifferent or insignificant to health.

Dr. Angus Smith has shown, by his process of testing the purity of the atmosphere, that a given amount of permanganate solution is decomposed by different volumes of air, according to its state of purity. The numbers below given show the volume of air capable of decomposing an amount of the solution of the permanganate,—the same in every case. The figures, therefore, represent the proportionate purity of the air. The highest numbers represent the purest.

Manchester.

	Cubic inches.
Air at All Saints', inside my laboratory	72,000
Front of the house	74,000 to 76,000
Bed-room looking to the back	61,000
Same room in the morning, after having been slept in	56,000
Bank of the Medlock, behind dirty houses	44,000
High ground, thirty miles from Manchester	176,000 to 209,000
Closely-packed railway-carriage	8,000
When the strong smell of a sewer entered my laboratory	8,000

We believe that the varied conditions of the atmosphere which have been tested materially affect health; and that it will be found, on investigation, that there occur a greater percentage of deaths and a larger amount of sickness at the bank of the Medlock and behind dirty houses than in the air of All Saints, which shows the comparative figures 72,000 cubic feet against 44,000 feet behind the dirty houses. Nor can we think the air of the closely-packed railway-carriage, or the atmosphere of Dr. Smith's study when the smell from a sewer entered it and reduced the figures of purity to 8,000 cubic feet, can be as wholesome as that to be found in a well-drained, thoroughly-dried, and well-ventilated house, built upon a rightly-selected point of the high ground thirty miles from Manchester, where the figures are given at 209,000 cubic feet.

It has been asserted that, if we take the comparatively small amount of labour which is borne by those dwelling in the country into consideration, it will be found that there is little difference between the conditions of health in the country and in the towns. If, however, we regard the class of agricultural labourers, it is certain that the amount of work which they do is as great and even greater than that by many town mechanics; and yet, take at random 100 of the former, and compare their healthy countenances with 100 of the pent-up artisans of Whitechapel or Bethnal-green, and the difference is but too obvious; and this, although, in nine cases out of ten, the villages and small towns are deficient in sanitary arrangements; the farm-houses poisoned by neglected drainage; and the houses unfit, by the faultiness of their construction, the want of ventilation, and deficiency of superficial space, for the accommodation of families. Nor is the quantity or quality of the food which can be obtained by the limited wages of the peasantry likely to favour health; notwithstanding which, the death-rate of most rural districts is very low when compared with that of many towns.

We readily admit that certain pursuits materially affect the duration of existence, and that the hard "wear and tear" of professional and business life materially shorten man's days; but this is not sufficient to account for the startling difference which is to be met with in varying districts of the metropolis, and for the death-rates of towns ranging from 40 to 20 and 18 in the 1,000. A reference to the Registrar General's figures, and an examination of the sanitary state of neighbourhoods, will, however, clearly account for a large amount of this difference: provided, that is, that the evil power of bad air be not disregarded. The writers here and there, medical and otherwise, who are seeking so industriously to prove that pure air is of so little value, always contrive to put in a protest against being considered the advocates of impure air. Away with such sham! They are the advocates of impure air; preachers of error; the worst, because insidious and disguised, foes of sanitary progress.

PAINTED GLASS.

The following letter from the Rev. G. A. Poole to the Rev. T. James, "On Painted Glass, with especial reference to the relative importance of White or Grisaille Glass," was read at the annual meeting of the Northamptonshire Architectural Society, held on the 2nd instant:—

You will remember that, at the meeting of our Architectural Society, held at Thrapston last year, I passed from a description of the glass in Lowick Church to a comparison between ancient and modern windows. Will you allow me, in the form of a letter to yourself, to pursue the subject a step farther; requesting you to communicate my remarks to the meeting on Thursday next, with my apology for not rendering them in person?

My former observations, being limited very closely to the texture of the glass, no farther exhausted the subject of glass-painting, its uses and happiest conditions, than a discussion of the merits of several kinds of paper would exhaust the subject of drawing in water-colour; but, just as the glass itself is the substratum of all that is painted on it, so does its proper texture underlie every practical question that can be raised upon glass-painting, whether it be viewed as a mere handicraft, or as claiming some remote cousinship with one of the fine arts.

My former conclusions are, indeed,—at least in my own eyes,—so essential to a just view of the whole matter, that I shall beg leave to re-state them, though in a greatly-compressed form.

I claim, then, a certain magical effect for ancient as compared with modern glass; and I attribute this to its semi-opaque texture, which gives a tone—an atmosphere, if the term be more expressive—to the light which it transmits, which is not comparatively, but absolutely, wanting in every modern window. The causes of the defect in our modern glass are various, but they all mount up to this one,—that, though we are sensible enough of the charm of the ancient effect, we have never set to work to produce it by the same means. We have attempted to imitate it by contrivances reaching only the surface; whereas the whole texture of the entire material is essential to its production.

And the question concerns all glass now made, as compared with all the old glass. It is not only the white or only the coloured glass in which the difference is apparent, or in which it is all-important. There is more tone—and I need not say how important tone is as distinct from colour—there is more tone in any square foot of glass in York Minster, white or coloured, than in all the acres of glass, white and coloured, put together in the International Exhibition of this present 1862. And, to use the all-powerful *argumentum ad crumenam*, I trust there is yet so much discrimination in the patrons of glass-workers that one square foot of tone, though it were only in one colour, or in grisaille, would have secured more orders for its exhibitor than any amount of glaring transparent colour.

I cannot help regretting, *en passant*, that Mr. Winston, who has done more than any one else to direct attention to the tone of old glass; to its beauty, and to its causes; has yet, in his practical, or at all events in his successful, efforts, begun and stopped short at the reproduction of the ancient colours. When, however, the more important, and far more fundamental, difficulty of a

texture producing tone has been overcome, the merit of first pointing to the right path will belong to him. We can hardly expect him to re-enter the heated arena of the glass-house. He serves a jealous mistress; and, having been admitted into the Temple of Themis by the golden door, he is right not to provoke her to turn him out by the glass window.

Deserted, then, by Mr. Winston, whither shall we turn? There are three parties concerned. There is the producer of the pot-metal: there is the maker of the window: there is the general customer, or the public; and standing by, not without a presumptuous hope that he may let drop some word helpful to all, is the fidgety, crotchety ecclesiologist. The influence of these parties is inversely as their power. The maker of the pot-metal could do it if he would, but perhaps at the cost of some experiments, and certainly not without a special preparation of his kiln; for the pot-metal could no longer be melted together with glass requiring perfect fusion. Without a strong pressure from without he will not, therefore, help us, though he could. The maker of the window, unless he is a mere craftsman, ought to feel the need of a better medium, that he may satisfy his own higher aspirations; but he is "driving such a roaring trade," that the timid whisper of his æsthetic conscience is not heard through its din: if it were, he would not rest till he had succeeded in procuring, or even in producing for himself, as every glass-worker of old was obliged to do, a better material. The general customer is, of course, utterly without directly productive power; but only let the true state of the question become known (and here comes in the voice of the ecclesiologist), and the demand for good glass, or none, will insure the supply. It will be like the old woman taking her pig to market: the ecclesiologist begins to touch the public: the public begins to jog the painter: the painter begins to poke the maker: the maker begins to dress his kiln; and the glass that pours out is fit for use.

But now, for argument's sake, let us suppose that we have that semi-opaque texture in our glass, after which, I wish I could say our glass-workers were feeling. There are some consequences, all of them of happy omen, which would naturally follow. First (and it is the only one that I shall pursue at present), white, that is grisaille, glass would rise immensely in the scale of importance; and this alone would work a revolution in the whole practice of window-making. Taken as the base of a window, white glass would hold its own as compared with the most varied and gorgeous colours. A pattern window—that is, a window composed of a ground of white glass, diapered with tendrils of plants, leaves, and flowers, and enlivened with devices of colour interlaced or scattered over it—would be once again duly appreciated. But for a constitutional dread of paradox, I would venture to hint that this is really the most appropriate and refined application of the glass-worker's handicraft. There seems to me to be no comparison in respect of real refinement of beauty, combined with appropriateness to their use, between the five sisters in the north transept at York and the great east window in the same minster, both admirable of their kind; the former a very subdued pattern window, the latter filled with countless subjects from Scripture history.

The question between windows of grisaille and of figures of deeper colour has, indeed, practically received an unfortunate answer from apparently remote circumstances. We have been feeling after church decorations of a higher order than cherubs' heads and royal arms over pulpits and gallery fronts; and for some reason, I know not what, we have been more courageous in the treatment of our windows than in the treatment of our walls. Though the Puritan of old broke every head in a window with a mitre or a glory upon it, which he could reach with fist or halbert, his spirit, transmitted to our day, has been more tolerant of saints and bishops in glass than in any other material. We have decorated our windows thus because we have not so decorated our walls. It is inconceivable that, if wall and window were equally at our disposal, we should paint our pictures on the window and leave the wall untouched. A transparent medium, and that by which the light is admitted, must be the worst possible, a wall reflecting the light must be the very best, situation for a picture. Certainly we have set our pictures in the worst place, and left the best place bare. Well, it was better than none; but now we are beginning to perceive our mistake, and what will be the result? We shall have pictures on our walls; but, unhappily, they will not be brought out, but killed by more glaring pictures already peering through our windows. The resource will be to run into another error,—to restore the figures on our walls to their due prominence, by overloading them with colour,—that is, by sacrificing tone to brightness,—the greater to the less,—as we have already done on our windows; and so bad windows will exact bad pictures to out-stare them.

Given, then, the wall pictured as it ought to be: what better handmaid can it have than a grisaille pattern window? When Raffaelle covered interiors with the highest productions of human art, did he ask for gorgeous figures or for a soft grey light in the windows opposite? For which did he ask, even while all the glass employed was good? Much more, if we could have another Ary Scheffer to decorate our churches, would he tolerate our modern glaring figure windows over against his refined conceptions, when he might hope, even as a remote possibility, for the pearly light of the grisaille pattern? Again I ask for glass toned by a proper texture, that we may be worthy to employ the highest art for our wall-paintings.

We have now reinstated grisaille glass in its proper dignity in itself, and as an accessory to other ecclesiastical decorations; but it has also lost its due place in figure windows. What can be more monstrous, as a work of art, than a cartoon for a window of high pretensions, into which scarcely a single piece of grey is admitted,—grey, which harmonizes all colours, and bathes all true pictures in the dews of heaven? The more pretentious such cartoons are the worse are they; and, bad as they are, they are tenfold better than the windows made after them, where all colour, being on a transparent medium, is intensified by transmitted light; and where, therefore, if anywhere, grey, grey, more grey, is wanted to subdue and harmonize the whole. In the best days of glass-painting, whole figures are often grey; drapery is grey; the ground, the surrounding buildings are grey; and on the grey glass is the best, almost the only painting—robes diapered with the greatest grace and care, faces finished with almost microscopic delicacy, porches and pavements carried into the background with such perspective as the artist could command; and this is as it should be; for, on coloured glass, all but comparatively coarse shading and diapering will be thrown away. Quiet, sober grace is thus thrown over the whole window. But now do not suppose that I ask for more modern white glass: it is simply and absolutely inadmissible; but I do ask for a large introduction of toned grisaille, when it can be had; and I do say that, without this, there can be no good figure window.

Whether or no the use of white glass was ever excessive I do not know; but I never saw even a Perpendicular window in which there was too much; and I should desire more in most Decorated windows. There is, however, a curious item in a contract for the glazing of the Beauchamp Chapel at Warwick (which I quote from memory), which provides that as little white or green glass should be used as possible. This indicates either a fear that too much white glass might destroy the effect, or a determination to get all that could be had for the money. I suspect that the almost total exclusion of white glass from high-priced windows at present arises from a fear, on the part of the glass-workers, that they will be suspected of "scrimping" if they do not give plenty of colour. But surely customers would not estimate pot-metal before art in the production, or tawdriness before refinement in the result.

Having now claimed its proper place for white glass, when white glass has become what it should be, I have exhausted the main subject of my letter. But one word more, to obviate a probable consequence of so frequent an assertion of the superiority of old over new windows.

I do not for an instant advocate a servile copying of old windows. Only let us emulate what is good in them, and do better, if we can do better, in everything else. Even in the particular thing which I most admire in them, it is quite conceivable that we may excel them. Our aim should be to combine the greatest possible translucency with the smallest possible transparency. In its present condition, at least, old glass rather fails in translucency. Let us aim to excel old glass in this respect, but it must not be at the hazard of admitting the smallest transparency. If we do this, we negative every other advantage. We laugh, perhaps, and justly enough, at the figures in the old windows: let us not imitate their grotesqueness or their bad drawing; but let us, at all events, escape the monstrous absurdity of figures that can be seen through.

What would William of Wykeham have said to his glass-worker if he had seen a pair of magpies traversing the nimbus of St. Agnes, or trees waving in the water of St. Christopher's ford, or a chubby-faced school-girl peeping through the folds of St. Ursula's mantle?

PRESERVATION OF STONE.

In your journal of the 11th I find there is a report of a paper read by Professer Ansted at the Cambridge meeting of the British Association, "On Artificial Stones," at the conclusion of which, as you state, a discussion ensued on the preservation of stone, which was several times referred to in the paper.

As that discussion was raised by myself in consequence of Professor Ansted's mention of the preservation of stone in connexion with Mr. Ransome's method of making artificial stone, I am desirous that my remarks on this subject should become public.

On the merits of the particular method of making artificial stone described in the paper, I have nothing to say; nor should I have ventured to make any remarks on this paper, had the writer confined himself to the subject of artificial stone, and not referred to that of the preservation of stone, as being borne upon by his communication, and that in a manner which seemed to me open to objection. Having some years ago devoted considerable attention to the decay and preservation of stone, I believe that I am able to offer an opinion as to the general probability of success attaching to any method of preservation, not only as a chemist, but also with the advantage of having specially studied the subject. Being familiar with the effects of the method proposed by Mr. Ransome for preserving stone, and with the effects of various similar methods devised by myself and others, I could not assent to the view put forward by Professor Ansted, that the method of making artificial stone, by immersing a pasty mass of sand and silicate of soda in a solution of chloride of calcium, and the results obtained by that method, bore upon the subject of preservation of stone; or to the opinion that there was any kind of analogy between the striking experimental illustration which he gave of that method of making stone, and the method proposed by Mr. Ransome for preserving stone, which consist in applying solutions of silicate of soda and chloride of calcium successively to the face of stone in buildings.

My reasons for denying this connexion and analogy between the two cases are the following: In making artificial stone by the method referred to, a mass or block of paste is first made by intimately mixing sand with a solution of silicate of soda. This pasty mass, when immersed in a solution of chloride of calcium, is converted into a solid hard mass by reason of the mutual decomposition of silicate of soda and chloride of calcium, giving rise to the production of insoluble silicate of lime as a cementing material throughout the mass.

The merest tyro in chemistry would never doubt that, under these circumstances, silicate of lime would be produced; or that silicate would also be produced when solutions of silicate of soda and chloride of calcium are successively applied to a stone wall; although I have heard it foolishly stated that, in reference to these methods, a doubt existed among chemists as to whether silicate of lime was produced in these cases. The important difference, however, between these two cases is this,—that, in making the artificial stone, one of the materials giving rise to the production of silicate of lime is of necessity intimately incorporated with and distributed throughout the mass in which, by immersion in chloride of calcium, the insoluble silicate of lime is to be produced. In the method for preserving stone, on the other hand, the silicate of soda can be introduced only by the absorption taking place when the vertical face of the stone is washed with the solution.

When a block of stone is immersed in a solution of silicate, absorption may take place to a very considerable depth; but, under the circumstances in which the method is applicable to the face of a wall or building, the absorption takes place only to a very limited extent, even by very frequent washing; so that, when the chloride of calcium solution is applied, the silicate of lime is deposited only superficially in the pores of the stone, and chiefly on the surface, where it lies like whitewash. I have invariably found this to be the result of all attempts to fill up the pores or interstices between the particles of stone and render it impervious by the deposition of insoluble substances, *whenever the number of washings applied to the stone was limited by a due regard to the practical applicability of these methods to*

buildings. By long-repeated washing, or by immersion, indeed, it is possible to effect a deposition of insoluble material to a great depth in blocks of stone; but such specimens have no practical significance as regards the preservation of stone in buildings.

In making the artificial stone, on the contrary, the silicate solution having been, by an easy mechanical process, introduced into the mass; it is easy to conceive that, when it is immersed in the chloride of calcium, the production of silicate of calcium would take place to the very centre of the mass. The silicate of soda which it contains would, in virtue of its chemical relation to chloride of calcium, facilitate and, as it were, form a road for the penetration of this solution. The depth to which the production of silicate of calcium might extend in this case would be merely a matter of time dependent on the size of the mass.

These strong and decided facts of difference it was which induced me to object to Professor Ansted's reference to Mr. Ransome's method of making artificial stone, as illustrative of the action and probable efficacy of that gentleman's method for preserving stone. At the time I spoke, I was not aware Professor Ansted was one of the committee entrusted with the inquiry into the subject of decay and preservation of the stone at the New Palace at Westminster; but, had I known this, my reasons for objecting to the suggested illustration of Mr. Ransome's method for preserving stone would not have been less strong.*

Professor Ansted remarked, in reference to the method for preserving stone, "that the objection so strangely felt, that the material thus deposited would probably be in the form of unconnected grains rather than a cementing film, seems answered by the formation of a stone so solid as the specimens shown." That objection was, I believe, first put forward by myself as the result of my experiments on this subject; and it applied to the production of the deposit, upon the surface and in the pores of the stone, as a powder liable to be washed away by rain. This is what I have found to be really the result in applying Mr. Ransome's or any similar method for the preservation of stone; and I cannot consider this objection in any degree answered by a result so totally dissimilar to the preservation of stone as the production of this artificial stone.

Not having had, during the last four years, an opportunity of knowing what had been done as regards the preservation of stone, I was anxious to learn whether the opinion Professor Ansted appeared to have in favour of Mr. Ransome's method was based upon any experimental or other results affording an *à priori* probability of the efficacy of that method. In reply to my inquiry, he described some observations as to the depth to which solutions had been found to penetrate stone when applied to its face, which I have since found to be contained in the reported evidence given on this subject before the Commission of which he was a member; but I was unable to elicit from him any information as to the real purport of my inquiry; which was, whether any data had been obtained, showing the extent to which solutions applied to the face of a building penetrated into the stone, *with the effect of producing in its pores a deposit of insoluble material, bearing any notable proportion, in its bulk, to the interstices of the stone, and to what depth such a deposition could be effected, at a reasonable cost, in practice*, so as to be fairly and reasonably expected to have a practical value as a preservative of stone? Whatever penetration of the solution may take place, without this effect being produced, must obviously be of no importance as regards the preservation of stone, even if it be admitted that such a deposition of material in the stone would be a preservative against decay.

Such data, I believe, have never been furnished by any of those who have essayed to preserve stone; and it was the attempt to obtain such data which led me to abandon this mode of preservation as hopeless. It might have been expected that those in whose power it was to authorize the application of projected means of preservation to such buildings as the new Palace at Westminster would have insisted on being furnished with such data as would afford reasonable probability of the success of the methods, when judged of by competent persons, before permitting the walls of that building to be plastered over with the secret and trumpery nostrums of a questionable inventor.

Mr. Ransome's attempts to obtain the desired result I believe to have been earnest and sincere; but, at the same time, I believe he has no chance of success in the direction he has been working. He has acquired a vague perception of a principle which is, at first sight, plausible; and which, some years ago, led me to devote much attention to the subject of stone preservation; at first with considerable hopes of success, which gradually disappeared under the test of practical application.

The principle embodied in the methods suggested by Mr. Ransome and myself—that of rendering stone impervious to air and water, by depositing in its pores a substance not liable to be acted upon by those agents of destruction present in the atmosphere and in rain-water—has, as usual, met with a host of imitators, proposing plans more or less impracticable; and I cannot but express my opinion that Mr. Ransome, in consequence of chemical misguidance, has adopted the very worst of all possible means of carrying that principle into effect; namely, the deposition of silicate of lime as the preservative material. Among insoluble silicates this substance is well known to be, above all others, the most liable to alteration and decomposition under the influence of precisely those agents which determine the decay of stone; viz., the carbonic and nitric acids of the atmosphere; the sulphuric and hydochloric acids arising from the combustion of coal, and from chemical works; aided by the solvent action of water on the stone, which has been chemically altered by the action of these substances.

I hope, however, that his method of making stone may prove more successful; and that it will furnish him with a reward for his labours in endeavouring to arrive at a means of preserving stone.

BENJAMIN H. PAUL.

* Another correspondent, fully acquainted with the proceedings of that committee, takes stronger exception to the course pursued by Professor Ansted on this occasion, on the very ground of his having been a member of the committee.

GAS.

THE Eton Gas Company have declared a dividend at the rate of 7½ per cent. per annum, which seems to have been the average of profits ever since the establishment of the company.——The Sheffield Gas Company's directors recommend the usual dividends of 10 and 8 per cent., leaving 807*l.* to their reserve fund. They speak of a reduction in price to 3s. 6d., and think "there cannot be a doubt that a reduction in price will cause an increase in consumption;" for which they are accordingly preparing by the purchase of ground on which to erect a set of new works.——The gas company at Newport, near Montrose, magnanimously gave their gas consumers the benefit of a reduction in price from 12s. 6d. to 10s.; and they now seem surprised to find that, "*notwithstanding* of this reduction, the company are still able to pay the usual dividend of 5 per cent. to the shareholders, and to set aside 28*l.* odd to account of tear and wear; and the reserve fund is at the highest limit allowed by the company's contract."——The Surrey Gas Consumers Company have declared a dividend at the rate of 8 per cent. per annum, payable on the 27th instant.——The Great Northern Railway Company are lighting their carriages with portable gas, instead of the oil lamps, often only sufficient to make darkness visible. A practical difficulty remains, however, to be overcome. The sudden rush of air, on entering a tunnel, is apt to put out the gas-light.

ST. ALBAN'S ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.

AT a general meeting of this Society, held at the Court-house, St. Alban's, on the 14th instant, —the Earl of Verulam, president, in the chair,—a paper was read by the Rev. Richard Gee, entitled "The Story of an Illustrious Neighbour, Lord Bacon."

The meeting was well attended; many feeling an additional interest in the subject from the circumstance that the noble earl who was to preside was the grandson of that Grimston, Earl of Verulam, who made a ruin of Bacon's house, and built a quarry above-ground in the shape of the heavy mansion a bowshot off the chosen home of the great Lord Chancellor of human nature.

Mr. Gee was not very well "up" in his subject; omitting any reference, even by name, to the most recent work upon it. Lord Verulam was more than usually attentive; and not less so the audience, when his Lordship rose to "justify" and "vindicate" his grandfather. A note of what his Lordship said will be read with interest.

"I am here," said Walter James Grimston, Earl of Verulam, "to 'accept' all that is said in favour of Lord Bacon, and to 'repudiate' all that is said against him . . . And now I must be allowed to allude to a matter personal to myself. Persons have often said that my grandfather pulled down Lord Bacon's house and sold the materials. When a boy I inquired about this. I learned that it was not a comfortable house, and that architects had said it was impossible to restore it: no architect asked would give a plan for its restoration: no one agreed in the possibility of preserving it. It was, therefore, pulled down, and the present much larger mansion built on the estate. My grandfather was anxious to keep the house intact as long as he could: underpinning would not have preserved it; and the end of it was, 'he gave it up and built a new house.' My family have always taken great interest in everything belonging to Lord Bacon: my father's sisters devoted more than eleven years in collecting 'whatever' would illustrate Lord Bacon's 'Life of Henry VII.'" . . .

A vote of thanks was then moved to the noble chairman, and the meeting adjourned. Is the vindication satisfactory?

WORCESTER DIOCESAN ARCHITECTURAL SOCIETY.

ON Monday, the 13th inst., the annual meeting of this society was held at the Natural History Room. The attendance was small.

The Rev. H. G. Pepys read the annual report of the committee. This contained, amongst other matter, a statement of all the transactions with reference to the endeavour to prevent the destruction of the Guesten Hall. Our readers, however, are fully conversant with this deplorable and discreditable act.

At the *conversazione* in the evening, the Rev. Maurice Day (head master of the Cathedral Grammar School) read a paper, entitled "Historical Reminiscences of Worcester."

After an interval, Mr. E. Lees read a paper "On the Street Architecture of Worcester; with Notices of the Ancient and Modern Names given to the Ways and Avenues of the faithful City."

The Rev. B. Arthure said that with reference to the derivation of the name "Dolday," which Mr. Lees ascribed to Old Hay, from the Saxon haga, he had heard it ascribed to the dole or alms given there by the Franciscan Convent which existed in that neighbourhood.

Mr. Severn Walker then made some few observations relative to the timber houses which had been spoken of, and read a short paper on the religious houses of Worcester.

GLASGOW ARCHITECTURAL SOCIETY.

THE annual meeting of this society was held on the evening of Monday, the 20th of October, within the Scottish Exhibition-rooms, Bath-street, when the secretary's and the treasurer's reports were read by Mr. Maclean and Mr. Howatt. The reports were unanimously adopted; and, on the motion of Mr. Gildard, a vote of thanks was awarded to Mr. Maclean and Mr. Howatt for their services. The following gentlemen were elected office-bearers:—President, Mr. Alex. Thomson, architect (re-elected). Vice-presidents, Mr. James Boucher, architect, and Mr. Walter Macfarlan, ironfounder. Honorary secretary, Mr. William Maclean, writer. Honorary treasurer, Mr. James Howatt, measurer. Councillors: Messrs. Salmon, architect; Malloch, glass merchant; M'Guffie, architect; Steele, modeller; Douglas, architect; Watson, Mason; MacConnel, ironfounder; Clarke, architect; Herbertson, measurer; Angus Kennedy, architect; Bowie, painter; and Watt, architect.

Afterwards, Mr. Shields, measurer, read an essay on "The History and Present Practice of Measuring Artificers' Work, with Statement and Comparison of different Modes of Estimating," which was followed by an animated discussion.

Mr. Salmon, architect, said that, after five-and-twenty years' experience, he was now quite convinced that the Glasgow system of re-measuring the work was exceedingly defective, and strongly urged the general adoption of the slump-sum system. He was supported in these views by Mr. M'Guffie, Mr. Honeyman, and Mr. M'Cord. On the other hand, the merits of the Glasgow system were energetically advocated by Mr. Howatt, measurer; Mr. Boucher, Mr. Gildard, Mr. Watt, Mr. Kennedy, and others. On the motion of Mr. Salmon, a large committee was appointed to consider the subject and report to a future meeting. Mr. M'Guffie, architect, exhibited specimens of, and made some remarks on, a silicate for preserving stone, prepared by Jesse Rust & Co., of London.

DEATH FROM ARSENIC.

At an inquest on the death of a young girl in the City, who had sucked the arsenical green colour from an artificial grape, Dr. Letheby gave evidence in the form of a report on the case in question, and on the danger of arsenical colours generally. The jury found that the deceased had been poisoned by sucking the arsenite of copper from artificial grapes; but it was proved in evidence that she had a chronic ulcer in the stomach, through which food had passed; and that no arsenic existed in the stomach or bowels, though there were traces of it in the liver. A single grape, according to Dr. Letheby's report, contained scarcely more than a quarter of a grain of arsenite, but he had once seen such a case, showing the narcotic effects of a small dose of arsenic. The ulcer might have given way from the irritation of the poison. The report then went on to say:—

"At the present time there are many arsenical greens, going by the names of Scheele's green, Swedish green, Siskin green, Parrot green, Brunswick green, Newied green, Mountain green, Schweinfurt green, Vienna green, Imperial green, Mitis green, &c.; and they contain from 58 to 71 per cent. of arsenic; the pigment being in some cases reduced with chalk or plaster of Paris to lower the depth of the colour. These dangerous pigments are put upon paper, toys, artificial flowers, and even ladies' dresses. A wreath of fifty green leaves may contain poison enough to kill ten persons; and a green tarletan dress of 20 yards would contain about 900 grains of white arsenic; and, considering how loosely the poison is attached, it is marvellous that very serious results do not often occur from it. It has been affirmed by a Berlin physician who has inquired into this matter that a lady's dress might give off sixty grains of the poisonous pigment in the course of a single evening, scattering a dust of poison in the air of a ball-room. It is time that some measures should be adopted for the prevention of this practice. I think it right to say that there is a very easy means of discovering whether a green is poisonous or not. A drop of a strong solution of ammonia put upon the colour will acquire a deep blue if copper is present, and copper is rarely present without arsenic."

The Coroner stated that, as corroborating Dr. Letheby's report, he might mention that a case had come within his own observation in which two sisters were taken ill after making a green dress for a lady; and the lady herself became ill after wearing it one night in a ballroom.

Something must be done to prevent the use of such materials.

A COLOUR-BRUSH FOR LARGE WASHES.

A correspondent, "T. A. S.," sends us a sketch of a colour-brush for laying on large washes of colour in architectural and other drawings. His description, however, will suffice to convey his suggestion:—

In colouring a drawing in which you have to work at several points at once, without allowing the colour to dry, is a difficulty increased by having to supply the brush with colour from the pallet; and, by continually dipping therein, you lose much time, by allowing the colour to dry. To overcome this I propose to have the colour within the handle of the brush, so as to let a proper quantity into the brush at pleasure, without having to supply it from the pallet. This I accomplish by making the handle of the brush of *glass*, similar to the sketch. The bristles of the brush are fastened around the bottom end of the tube; and at the top of it is formed a neck (fitted with a cork), through which the colour is put in before using it. In the neck of the tube is a small perforation; and over this is worked a small india-rubber air-valve by a lever, having a fulcrum about the centre of the brush and coming to the lower end, where the fingers rest in holding the brush. This valve is kept closed by a small spring underneath the lower end of the lever.

To use the brush, mix the colour, put it into the tube, and cork it air-tight; then, by pressing one of the fingers or the thumb (by which it is held) upon the lever, the valve is opened, and admits air to the interior, and the colour then comes into the brush; and this is stopped again by allowing the valve to close. The spring is made strong enough to resist the pressure necessary to hold the brush, so that to open the valve it must be pressed a little more. When the valve is open the colour fills the brush, but it does not drop off the end of it, unless touched by something—as the paper, when in use; and when the valve is closed, the colour may all be wiped out of the brush, and the bristles will not draw any more in until the valve is again opened.

I have made a rough model of it; but, in lieu of the valve and lever, I placed the end of the finger of my left hand on the top of the tube where the cork ought to be, so that, by raising my finger or pressing it on the end, I could admit air or exclude it in a similar manner to the action of the valve. The brush kept a good point; and, altogether, the model quite realized my expectations.

RAILWAY AND WATER CARRIAGE OF COAL TO THE METROPOLIS.

After the commencement of the railways, the late George Stephenson long had an idea of forming throughout the central districts of English industry, from north to south, a railway; or, as he would sometimes call it, "a sort of strong current of steam," expressly for the conveyance of minerals and heavy goods. In this were to be used engines of great power; and not so much was to depend on excessive speed, as on the ability to convey large quantities at a moderate cost. This scheme was not carried out; but the immense quantity of coal which is at present brought to the metropolis by the railways by an arrangement more expensive and inconvenient proves the correct judgment which George Stephenson had formed of the extent to which the traffic by railways would increase in a few years from the time of their commencement. To illustrate this, it is worth while to give the following tables, which show the extent of this traffic, and also enable us to compare the supplies of coal which were carried to London in the month of September in the present year:—

	Tons.	Cwt.
London and North-Western	66,422	17
Great Northern	31,191	16
Midland	23,200	0
Great Eastern.....	11,071	9
Great Western	10,339	0
South Western	1,108	10
Chatham and Dover.....	250	2
Tilbury and Southend	76	0
	143,659	14

There have, in the same month, been carried to the metropolis by canals 9,009 tons of coal. Of sea-borne coal there have come to London,—

	Tons.
From Newcastle	95,855
Hartlepool and West Hartlepool....	47,360
Sunderland	72,422
Seaham.....	15,593
Middlesborough.....	5,542
Blyth.....	1,688
Scotch	1,372
Welsh	14,092
Yorkshire.....	2,616
Duff	379
Small coal	2,218
Cinders.....	1,062
	260,199

Taking the nine months of the present year, the proportion of land coal is not so large; for, during this period, the coal brought by railways is 1,052,224 tons 16 cwt.; and that by sea, 2,467,614 tons; and it is to be observed that this vast supply falls considerably short of that during the same time last year,—a circumstance which may be to some extent accounted for by the general mildness of the season and depression in some branches of industry.

Notwithstanding the carriage of coals by railways, the increase of sea-carriage has been great, particularly in the port of Sunderland. About thirty years ago, Hartlepool and West Hartlepool, Seaham and Middlesborough, scarcely shipped any coals; while, in the month of September last, 68,495 tons of coals were sent from these recently-formed ports to London; and the exports to France and other foreign countries have been also largely increased.

UPFILL'S IMPROVEMENTS IN IRON BEDSTEADS.

The use of iron bedsteads has become very considerable, and with good reason, for they have many advantages. Any improvement in them must interest many of our readers. Formerly, the several parts of such bedsteads were connected together by screws and nuts; but as the latter constantly became loose, and the whole framework consequently rickety and uncomfortable, the introduction of the dove-tail joint and socket, now generally adopted, was regarded as an important improvement; and so it was. These dovetail joints and sockets have hitherto been made of cast-iron, on the end and side rails and the pillars of the bedstead. Now the brittleness of cast-iron is well known, and there are few persons who have used iron bedsteads who have not had to complain of some of the joints having given way.

Mr. Wm. Upfill, of Upfill, Morton, & Co's., of Birmingham, has, by a recent ingenious application of wrought-iron in place of cast-iron, obviated this inconvenience, so that the joints can scarcely be damaged except by the intentional employment of force. For all practical purposes metallic bedsteads provided with Mr. Wm. Upfill's improvements would now really seem to be indestructible. In addition to this constructional improvement above referred to, Mr. Upfill has rendered metallic bedsteads much more capable of ornamentation than heretofore, by a simple and inexpensive application of perforated metal to the corner posts; thereby giving to metallic bedsteads a more solid and substantial appearance than they have yet had. We shall not be surprised if these improvements tend to create a greatly enlarged demand for this description of furniture, and repay Mr. Upfill for his endeavours.

COMPETITION.

Langham Hotel, London.—The referee reduced the number of designs submitted, first to three and then to two. From these the directors have selected the design sent by Mr. John Giles, architect.

REFORMATORIES AND PRISONS.

The great importance of this subject has led us, since the publication of some notes expressive of our strong belief that the reformatory or industrial schools should be kept apart from institutions for the reception of boys and youths convicted of criminal offences, to make careful inquiry at industrial schools, for the purpose of learning their method of working, and hearing the opinions which have been formed by the managers of these establishments. All that we have heard confirms, in a striking manner, the statements which, on several occasions, we have made on reformatory schools, as they are at times called.

In order to show the nature of the industrial schools which have been opened in many parts of the metropolis, and in some large provincial towns, we will first call at the St. Pancras Industrial School, now situate in Gray's-Inn-road, to which locality it has been removed from Britannia-street.

The house in which the new school is now carried on is of considerable size. There is a shop in which shoe making and repairing are carried on; and in the basement there is accommodation for breakfasting, dining, and so forth. Above are sleeping-rooms, which are scrupulously clean and comfortable. At the back of the premises are a yard and a workshop, in which the boys are employed in cutting wood, &c.: here twenty-two boys, of ages ranging from about seven or eight years to fifteen or sixteen, find a shelter. In connexion with this establishment there are two ragged schools,—one in Britannia-street, and the other in Brunswick-street: from these places many children, who were in the most destitute condition, have been brought, or have come of their own accord, to the house in Gray's-Inn-road. We were here shown photographs of boys, taken at the time of admission; and anything more ragged and miserable than the appearance of some of them cannot well be imagined. One child, who had no father, but a drunken and most depraved mother, was found in his miserable home actually naked: every article of clothing, or anything which could produce a penny, had been pawned and sold for the purpose of procuring drink. We can well imagine the fate of this little boy, had he not been thus fortunately removed: he is now an intelligent youth, and doing well in a responsible situation. Some of the inmates have no parents: some have lost their mother; and this is often a greater loss than that of the father: others have step-fathers and step-mothers, who sometimes hate, neglect, or ill use the children. As a rule, none who are known to have been convicted of theft or crime are admitted; but there is one case so remarkable and so illustrative of the working of these schools, that it is worth while to give a sketch of it. A boy of about eleven years of age attended one of the ragged schools above referred to. He was dirty and most neglected; and frequently bore the marks of blows and ill usage: sometimes the hair was entirely cropped off his head. It was found that this boy had a step-mother; that the father did not look much after him; and that the hair-cutting, blows, tying to bed-posts, and other barbarous means were used by the step-mother to punish the child. At length he ran away, or was driven from home altogether; and at last, in the most extreme hunger and distress, he applied for admission into the Industrial School. After he had been here for

some weeks, and his conduct had been quite satisfactory, it came to the knowledge of the master that this lad had been guilty of many acts of theft. With the particulars of some of these he was acquainted; and he took the opportunity of calling the boy to him in private, and charged him with having been a thief. With grief and sobbing, which made the heart of the master ache for him, the boy acknowledged that it was so. He was then asked what was the largest sum he had stolen; and he said a sovereign, which had for some purpose been entrusted him. He told the master that he had divided this money with other boys. One considerably older than himself, and who had probably prompted him to steal the money, received 10s.: another companion received 3s. 3d.; and the boy himself paid 6s. 9d. for a pair of shoes. The shoes were soon parted with; and the boy slept in empty houses, in areas, under arches, or in the parks or fields: he had stolen two loaves of bread: he had also stolen a cheese, part of which was eaten, and the remainder bought by a person who should have been prosecuted for doing so; but this could not be done without convicting the boy. From this time, and indeed from the time he entered the school, the boy we speak of was truthful; and, although anxiously watched by the master, he was faultless. He was sent to the house of a clergyman, to assist in cleaning the plate and knives; receiving a weekly sum, and coming to the school every evening after his work was finished. In the family of this gentleman he continued for two years to give great satisfaction; and he has left for a better situation, and will soon be able to provide honestly for himself. Altogether, this boy has been more than three years in the Industrial School; and the master says that he has not known him to tell the least lie, or take the most trifling article that did not belong to him. We suspect that if this boy had been sent to prison the result would have proved different. The youth who got the 10s. has been often committed, and is now a confirmed reprobate. As regards the lad who has been saved from mischief, his faults, although known to the master, were not betrayed to his companions; and, left to the working of his better nature, and to the action of that spirit of right pride which is so likely to prevent evil, this boy seems to have been redeemed from a condition which was almost hopeless.

At six o'clock in the morning all the boys are washed and dressed; and from six till eight o'clock they are taught spelling, reading, writing, and the simple rules of arithmetic. After breakfast some go to work as errand-boys; or to assist in gentlemen's houses. One youth was in the receipt of 10s. a week. The accounts are altogether very hopeful and satisfactory. The boys, after a trial, are left to their own will: they go without restraint to and from their work; and have time allowed for recreation. The younger inmates have occasional trips to Hampstead and elsewhere; and, altogether, we saw so much cheerfulness and promise in these boys, that we more than ever felt an earnest desire for the extension of schools of this description, as they were originally planned; not allowing the admixture of those boys who have been, and still must be, subjected to a sort of prison discipline. We found this experience confirmed in other instances.

Although our more immediate purpose in recording these few notes was to speak of industrial schools for children who are not criminals, we may append a few particulars as to a farm-school reformatory for juvenile offenders.

At Redhill, in Surrey, the Philanthropic Society have a farm-school, well known to those connected with the movement for the reformation of young criminals. The farm consists of 240 acres of land, 40 of which are pasture, and the rest arable. On this estate there are some large buildings; or, as they are technically termed, "houses;" each fitted up with every convenience for the health and comfort of fifty boys. There are baths, airy dormitories, dining-rooms, and workshops; a master, a matron, and mechanics qualified to instruct the boys in the different trades of carpenters, brickmakers, tailors, shoemakers, and blacksmiths. They are also trained to all kinds of farm work,—digging, draining, reaping, milking, the care of stock, &c. There is also a church on the estate, with a chaplain. To gain admission into the institution it is necessary that a boy must first commit some crime and be convicted of it; and he must be between ten and sixteen years of age. The committee send annually about forty or fifty boys as emigrants, to Australia, Canada, or Africa. This is entirely a private institution; but the committee have agreements with nine counties and five boroughs to take their criminal boys sentenced for long periods; and they believe that from 70 to 80 per cent. of those who come under their care go forth reclaimed. The number of boys now in the school is 254. Since 1849, 1,500 boys have been received into this school, of whom 650 emigrated.

DR. SALVIATI'S ARCHITECTURAL ENAMELS.

The use of these enamel mosaics, we are glad to say, has spread in this country since we first made our readers acquainted with them. We mentioned recently that Dr. Salviati had received a commission for a spandrel in St. Paul's Cathedral; and now, with the sanction of her Majesty, they are to be used in the vaulting of the little chapel known as the Wolsey Chapel, in the Chapel Royal, Windsor. This is probably the first instance of their introduction into our Gothic buildings north of the Alps since their being made use of in the thirteenth century, in the tombs of Edward the Confessor and Henry III., in Westminster Abbey. A more magnificent mode of decoration can scarcely be imagined; and it has in this country the great advantage of not being liable to injury from the dampness of the climate.

The common base is glass, but glass subjected to such varied treatment that it is difficult to recognize it in all the forms which it is made to assume. The characteristics of these coloured *smalti*, or plates, are that they may be produced in an infinite variety of shades; that they are pretty nearly indestructible; and can be cut readily into the most minute sections. In them the colour is diffused universally throughout every particle of the plate; but the gold and silver *smalti* are produced apparently by laying a thin sheet of metal on discs of glass, and then adding the thinnest possible coating of glass over it, so that the original brightness of the gilding can never be tarnished or damaged by any external influence. Of their adaptability to all kinds of works we have numerous examples in the building, and have already spoken pretty fully.

THE OXFORD WORKHOUSE QUESTION.

At a special meeting of the local board of guardians to decide on the report of the building committee, the report in question was read, of which the following is an abstract:—

"Twelve tenders were sent in for the building of the house and appurtenances upon the plan of Mr. Fisher, unanimously selected by the board on the second competition. Three of them are below the maximum cost of 9,000*l.*; so that the requirements of the conditions already published have been fulfilled, and Mr. Fisher is entitled to 50*l.* for his plan, unless the board shall select him as the architect to superintend the erection of the building, as shown on his plans. The committee is unanimous in recommending that the superintendence should be entrusted to Mr. Fisher. The committee has not selected the lowest tender, and now recommends that the tender No. 2, sent in by Mr. Curtis, should be accepted. The committee recommend that the front and main building, with the necessary offices and sheds, be at once proceeded with; and that, so soon as the necessary authority of the Poor Law Board can be obtained, the infirmary be erected.

The committee further recommend that they be permitted to appoint a clerk of the works at an early date, at a reasonable salary. As Mr. Curtis proposes to make the bricks on the ground, and as his tender must be looked upon as including the bricks for the whole of the buildings named therein, in order that he may reimburse himself for his outlay for plant, it will be necessary to make arrangements with him to leave sufficient bricks on the ground, for which the Board will have to pay, unless an order from the Poor Law Board can be obtained for proceeding with the other buildings so soon as the main building shall have been completed."

The following is the list of tenders referred to in the report:—

Dalrymple, Kidlington..	(bricks made)	£11,295	0	0
,, ,, ...	(not made)	11,866	0	0
Sawyer, Cannon-street, London	(optional)	11,605	0	0
Tutcher, Salisbury.....	(made)	10,500	0	0
,, ,, ...	(not made)	10,800	0	9
Young & Co., Oxford	(made)	10,211	0	0
,, ,, ...	(not made)	10,400	0	0
T. Jones, Oxford.....	(made)	9,546	10	0
,, ,, ...	(not made)	10,119	10	0
Dover, Oxford.....	(made)	9,551	7	2
,, ,, ...	(not made)	9,926	2	2
Joseph Castle, Oxford	(not made)	9,870	0	0
Cowley, Oxford	(made)	9,158	5	0
,, ,, ...	(not made)	9,722	5	6
Horseman, Wolverhampton ..	(made)	9,212	10	1
R. Evans, Oxford	(made)	9,000	0	0
,, ,, ...	(not made)	9,195	0	0
Curtis, Oxford.....	(made)	8,991	0	0
,, ,, ...	(not made)	9,607	0	0
T. Green, Cassington	(made)	8,689	2	5
,, ,, ...	(not made)	9,552	16	7

The Board, on consideration of the report, received the same, and appointed Mr. Fisher architect of the works; accepted Mr. Curtis's tender; postponed the question of appointing a clerk of works; and left it to the committee to close with the contractor with or without the aid of a solicitor.

THE NEW GRAMMAR SCHOOLS, NEWCASTLE, AND THE NORTHERN ARCHITECTURAL ASSOCIATION.

As agreed, a deputation from the Northern Architectural Association, consisting of Mr. Wilson, Alnwick; Mr. Haswell, Shields; and Mr. Dunn and Mr. Austin, Newcastle; waited upon the Committee of Charities of the Corporation of Newcastle, on the 20th inst., to protest against a decision of a committee of the council, which they considered antagonistic to the interests of the architectural profession. It would appear that, when the erection of the new Grammar Schools was resolved upon, it was mooted at the same meeting that the profession should be invited to compete; but, instead of this being done, the committee were understood to have purchased duplicate plans of a school recently built near London, and to have engaged a person to superintend their erection. The deputation was courteously received, Dr. Newton occupying the chair. Mr. Austin explained that the object of the visit was to protest, in the name of the Newcastle architects, against the purchase of ready-made plans for the Grammar Schools. He added that the views of the deputation had been materially modified on learning that the person chosen to superintend the works was a member of their own body (Mr. Hogg); but that it was still the feeling that the committee would have done better had they invited the public competition mooted. Mr. Dunn, in a few words, extended the importance of the subject by showing that it was a matter that affected not the Newcastle architects only, but the whole profession. In reply, Dr. Newton said that, before the committee could take any definite step towards the erection of the proposed school, plans were obliged to be laid before the Court of Chancery; that the plans in question were exactly suited to the requirements of the committee; that they had adopted them as the speediest mode of bringing the matter before the Court; and that no slight was intended to the profession; one of the body being duly commissioned to superintend the carrying out of the chosen design. Mr. Lockey Harle and Mr. Phillipson made observations to a similar effect. The deputation accepted the explanation, and withdrew.

DEATH-RATE OF TORQUAY.

In a late impression of your paper you gave a statement of the death-rate at health resorts, in which *Torquay*, though a place of considerable population and not of very large area, and consequently more liable to the epidemics and death-causes of large towns, takes a very high standard, having a death-rate of no more than *the entire* district of the Isle of Wight, viz., 17·1 in a thousand. It is well known that Torquay is the resort of great numbers of invalids suffering from pulmonary diseases, for which it possesses two admirable institutions, viz., the Western Hospital, for consumption; and the Erith House Institution, for diseases of the chest: in addition to these there is a general hospital, the Torbay Infirmary and Dispensary, to which has been lately added a *fever* department.

It may be interesting to compare notes with the state of things twelve years ago, before the introduction of the Public Health Act.

Comparing the estimated population of the period from 1846 to 1848 with the registrar's returns, we find the death-rate to have been 24·33 in a thousand; thus showing a diminution, during the last fifteen years, of 7·2 deaths in a thousand.

Since the adoption of the Public Health Act, the whole of the town and greater part of the district have been thoroughly sewered; and a supply of water, with only one degree of hardness, brought into the town from the borders of Dartmoor, at a cost of upwards of 50,000*l.*

Other sanitary works, the importance of which the Local Government Board are fully alive to, have been and are being carried out.

I think, sir, facts like the above speak well for the working of the Health Acts, and should be an inducement to other places to follow the example of the wide-awake inhabitants of Torquay, who know too well the advantage of keeping their visitors by making Torquay, as it is, really and truly a health resort.

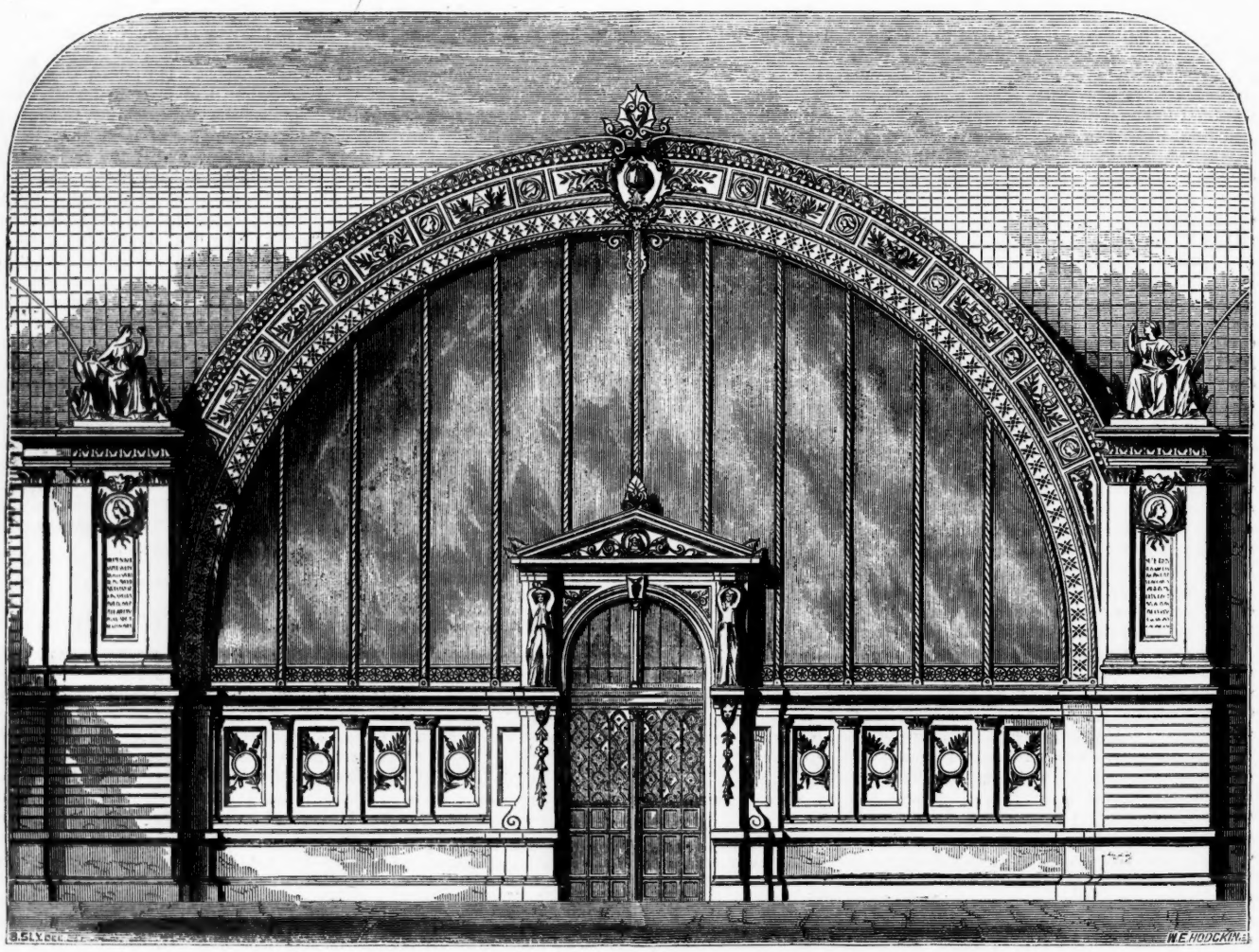
Edward Appleton,
Surveyor to the Local Board.

THE PARIS PERMANENT UNIVERSAL EXHIBITION AND BAZAAR.

In a recent number* we gave a view and a ground-plan of the building in course of construction at Auteuil. The importance of the undertaking, and the merits of some of the details, induce us to present our readers with an enlarged view of the central chief entrance, with the dome, or, more properly, cupola; and one of the gateway in the opposite side of the edifice. Since our former notice the works have been advanced with great energy, both by day and by night; advantage being taken of the illuminating powers of the electric light. The stone walls are already several mètres above ground: the castings are in a forward state; and the ironwork of the flooring and girders is all ready. The chief entrance will be richly adorned with sculpture, and surmounted by groups of figures on pedestals, the central one being about 16 feet high. Across the great arch, 53 feet in width and 68 feet in height, will be a screen, constructed entirely of iron, recessed 26 feet from the front line of the building. The lower part of this screen will be filled in with grilles of hammered iron; the upper portion with coloured glass. The archivolt of the opposite gateway, which is distinguished as the gate of egress, will be of bronze, inclosing panels of majolica in gold and divers colours.

The cupola, constructed entirely of iron, will be covered with fluted glass, manufactured after a novel method. This glass, refracting and tempering the sun's rays, will obviate the use of awnings, so damaging to effect, as may be seen in the present Exhibition, where one cupola is completely hidden from internal view by a great awning stretched across it. This cupola is not designed for mere ornament: it is destined to cover a majestic group of cedars, which has been preserved just at the intersecting point of nave and transepts, and which sets off its proportions. All who saw the Exhibition of 1851 remember the impression conveyed by the view of the trees which were then inclosed in that fine glass case.

In comparing domes which aspire to both internal and external effect, it is necessary to regard the relative proportions of diameter and altitude. Mere vastness without symmetry is never pleasing: much less pleasing is the breadth of a giant's shoulders set on the legs of a dwarf. The much-abused cupolas of South Kensington have failed to produce the desired impression of grandeur, mainly because their springing line is very low. With an internal diameter of 135 feet, the height to the springing line is only 100 feet; whereas the inner dome of St. Paul's, 100 feet in diameter, springs at a height of 168 feet, and the outer dome, 112 feet in diameter, at a height of 215 feet from the floor-line. The great dome of S. Maria



THE PARIS PERMANENT UNIVERSAL EXHIBITION: EGRESS GATEWAY

Florence, octagonal on plan and 139 feet in diameter, springs at a height of 175 feet from the ground. That of St. Peter, Rome, circular on plan and of a like diameter with the last, springs at a height of 275 feet from the floor-line.

The cupola now illustrated is on plan an equilateral polygon, 131 feet in diameter. At a height of 110 feet from the floor a gallery will run inside and outside: above this will be constructed a tympanum or drum, 21 feet high, from which the cupola will rise to an internal height of 227 feet, the whole being surmounted by a lantern. Braced girder ribs, 6 feet 6 inches in depth at the springing, will diminish to a depth of 3 feet 6 inches at the apex. The external diameter of the cupola at the springing line will, therefore, be 144 feet.

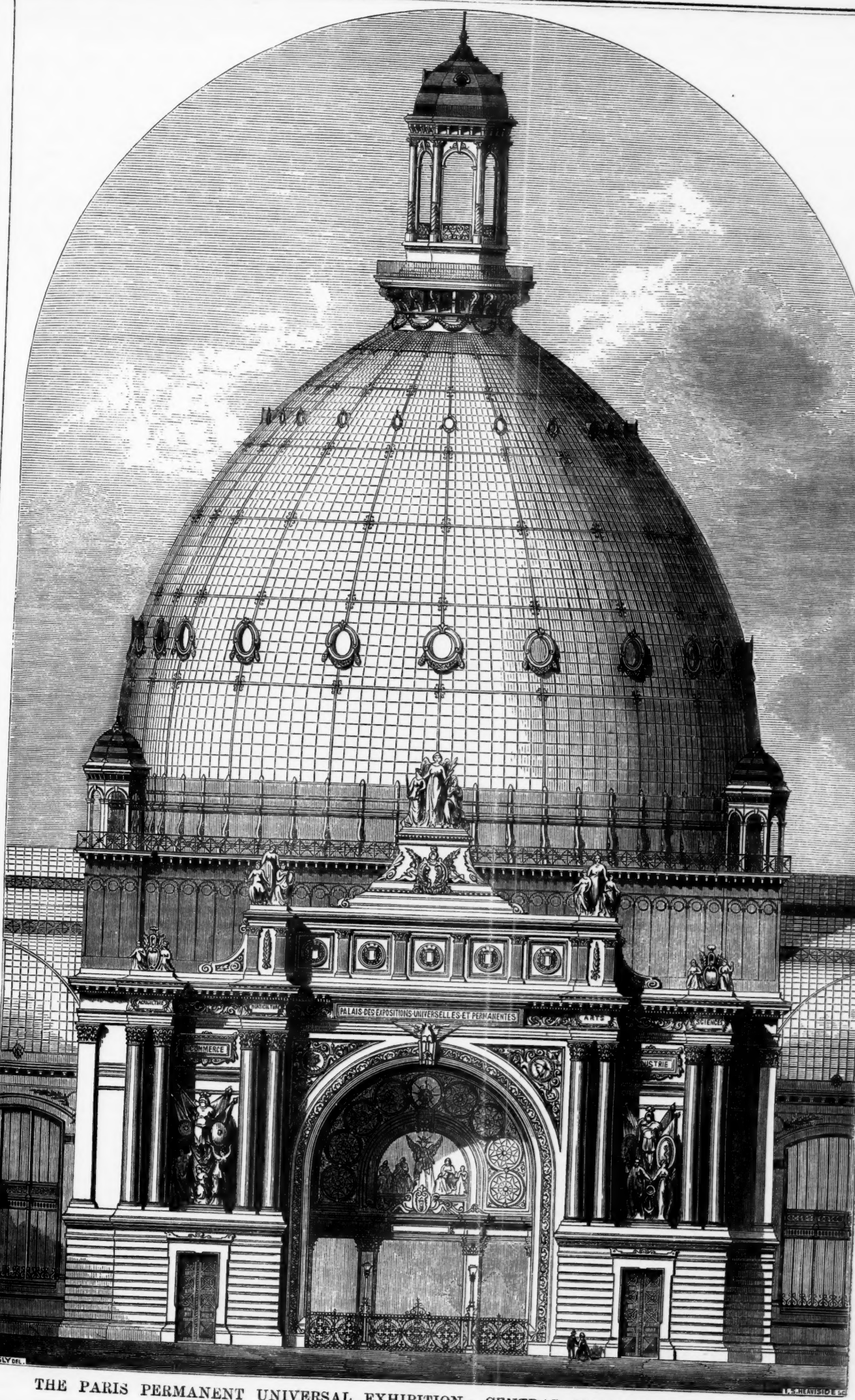
It has been said that, "Among all the compositions of the ancients, we find no cupola raised above the necessary loading of the hemisphere, as is seen particularly in the Pantheon. In after ages the dome of Florence and of the great church of Venice were raised higher." And, again, "The cupola of the church of St. Augustine at Rome, built in 1483, although not important by its dimensions, forms an epoch in the history of cupolas. All those which had been erected up to that period were either, like the Pantheon, supported on walls or on pendentives united to the arches of the nave, as at S. Sophia and S. Marco; or on low tambours, as at the cathedrals of Pisa, Sienna, and Florence. The cupola of S. Augustine is the first which was established on a *tour de dome*,—a happy idea more fully carried out in the dome of St. Peter's." The drum feature is fully developed in our own metropolitan cathedral. Among domes constructed for a useful purpose, without affecting external grandeur, that of the reading-room of the British Museum may be mentioned as entitled to a foremost place: its internal diameter, 140 feet, being less than that of the ancient Pantheon by 2 feet only—a very foolish falling-short, by the way.

We may mention that Mons. Liandier, the architect of the new Parisian Palace, has associated with himself Messrs. Lehmann & Peigniet, architects, and Mr. Schmitz, engineer; and these gentlemen say that the works will be finished by next August.

* See page 637, *ante*.

STRAND MUSIC-HALL.

As our readers are aware, a company has recently been formed to erect a music-hall on the ground now the site of Exeter Change; embracing the late office of the *Literary Gazette*, and the building recently occupied by the English and Irish Church and University Insurance Society, 345, Strand; and which, among other events in its history, was at one time the office of the *Courier;* and in the handsome room of which, on the first floor, Lord Palmerston is supposed to have made his maiden speech. The whole of the building will be removed and replaced by an ornate structure, comprising a music-hall, to hold 2,000 persons, and a restaurant and dining establishment. The company have already instructed Messrs. Eversfield & Co. to sell the building materials and clear the ground. The working drawings are in a forward state, under Mr. E. Bassett Keeling, the company's architect. The building will be commenced as soon as the ground is cleared. It is stated that enough capital is already subscribed to carry out the building; which, we understand, will be in a sufficiently forward state to apply for the spirit license in March next.



THE PARIS PERMANENT UNIVERSAL EXHIBITION: CENTRAL ENTRANCE AND CUPOLA.

MONS. LIANDIER, ARCHITECT.

WESLEYAN, CONGREGATIONAL, AND OTHER CHAPELS.

Wesleyan Chapel, Walsall Wood.—This new chapel is built in the Early English style. The elevations are executed in limestone, relieved round all the windows and doors, as are also the quoins of the building, with sandstone dressings. In the centre of the front elevation is a large window constructed in sandstone; and on each side is a Gothic light window, executed likewise in sandstone. In the side elevation are six twin Gothic head-lights. The entrance to the chapel is from a porch on each side. The roof is slated with blue Bangor and red Carnarvon slates, three courses alternately. The ridges are covered with ornamental crest tiles. In the roof are eight lucarnes, four on each side. These appear like small roofs intersecting the principal roof. The interior of the chapel is 37 feet 6 inches long, and 27 feet wide. The vestry is 10 feet by 9 feet; and under it provision is made for a heating apparatus. The aisles and porches are laid with 6-inch blue and red quarries. The timber of the roof is of Memel deal, and is exposed to view. The pews, free sittings, and woodworks, are stained and varnished; and the ironwork painted blue. The outside woodwork is of grained oak. The total cost of the chapel and site is about 470*l.* Mr. Samuel Loxton, of Wednesbury, was the architect.

Congregational Chapel, Newmarket.—The chief stone of a Congregational chapel in this town has been laid by Mr. John Crossley, mayor of Halifax, and chairman of the English Congregational Chapel Building Society. The building is to be erected on the site of the Newmarket Palace of King Charles II. The dimensions, as given in the plans, are, within the walls, 68 feet long by 42½ feet wide. It will be constructed of flints, interspersed with bricks, and surmounted in front by on ornamental clock tower. The style will be Gothic.

Baptist Chapel, Ashby-de-la-Zouch.—The general Baptists at Ashby have just erected a new chapel, calculated to seat about 600 persons, with schoolrooms and vestries attached. The entire cost of the chapel is 1,600*l.*

Wesleyan Chapel, Worksop.—The foundation-stone of a new Wesleyan chapel at Worksop has been laid. Messrs. Wilson & Crosland, of Sheffield, are the architects; and Mr. John Duke, of Sheffield, is the builder. The structure will be in the Early English style. It will be constructed so as to seat 800 persons; the present building being only capable of containing 300 seats. The building will be of wall stone, with Steetley stone dressings. The committee have also determined to build schools, which will be placed behind the chapel, with vestries and offices; and the cost of the whole will be upwards of 2,000*l.*

Methodist Chapel, Selby.—The new Primitive Methodist chapel here, the foundation-stone of which was laid last Good Friday, has been opened. The edifice is capable of holding about 500 persons; and is built of brick, faced with stone. Mr. Herbert Fippard, of York, was the architect; and Mr. Bairsto, of Selby, the builder. The land was given by Lord Londesborough.

Methodist Chapel, Crowle.—The Primitive Methodists of this place having purchased a site in one of the principal thoroughfares on which to erect a new chapel and school-room, the foundation-stone has been laid. The plans and specifications for the chapel have been prepared for the trustees by Mr. W. Hall, of Hull. The tender of Mr. W. Cowling, of Crowle, has been accepted for the erection of the buildings. The entire outlay will be about 800*l.*

Congregational Church, Darlington.—The new Congregational church here has been opened. It is erected on the site of the old chapel in Union-street, and on that of adjacent buildings. It is erected as a memorial of the two hundredth anniversary of the ejectment of the 2,000 nonconforming clergy of the Church of England, on Bartholomew's day, August 24th, 1662. The edifice is arranged on the cruciform plan, and consists of nave, aisles, and transepts, with a vestry behind, under an organ gallery. There is a narrow gallery round the sides and front, supported by light iron pillars, rising to the springing of the wood arches which carry the roof. At the front entrance is a lobby with staircase at each side leading to the galleries, each having separate entrances, but communicating also internally: there is also an entrance and staircase from the back, leading to the vestry and organ gallery. The church is in the Middle Pointed style, and is built with stone, in random courses, with ashlar dressings. The front has a five-light window, with a double doorway beneath: at each side, at the end of the aisles, is a single doorway, with a smaller window over. The end of the aisle nearest Northgate is surmounted by a lantern tower and spire 100 feet high to the summit of the cross, and forms a conspicuous object from the northern part of the town. The church will seat 600 adults, allowing 20 inches clear for each person, and 100 children, allowing 14 inches for each. The cost, including lighting, warming, and ventilating, is 1,900*l.* Messrs. Pritchett & Son, of Darlington, were the architects; and Mr. Thomas Robson the contractor for the whole of the works, except the plumbing and glazing, which have been executed by Mr. Francis Forster, one of the congregation.

Wesleyan Chapel, Newcastle-upon-Tyne.—The Wesleyan Chapel, Prudhoe-street, in connexion with the United Methodist Free Church, has been opened. The present building replaces that in New Bridge-street. The style adopted by the architect, Mr. G. Kyle, of Newcastle, is Italian Gothic. The prevalent deep red-coloured front has been relieved by the stone facings. The columns which support the gallery are of iron. The builders are—Mr. J. Kyle for the masonry, and Messrs. Wilson & Beary for the carpentering. The estimated cost was 3,500*l.*, of which sum 2,000*l.* has been raised. The building will accommodate 800 persons.

Presbyterian Church, Carlisle.—A new church, constructed to accommodate between 700 and 800, is in course of erection in Warwick-road, Carlisle, for a congregation in connexion with the English Presbyterian Church. Plans were obtained from Mr. Raeburn, architect, Edinburgh. The edifice is a simple Gothic building, with a square tower 75 feet high, supported by buttresses, and surmounted by ornamental turrets. The sides of the church are divided into four bays by buttresses. There will be a large triplet window at each end. The interior of the church consists of ground-floor, with front and side galleries. The area is several feet above the level, so that space is found beneath for a hall, capable of accommodating 500 or 600 people, and which may be used either for meetings, or day or Sunday schools. A residence for the minister is to be built in connexion with it. The chief stone has just been laid.

CHURCH-BUILDING NEWS.

Rand (*Lincolnshire*).—The church here was re-opened on 28th ult., by the Bishop of Lincoln. The chancel has been entirely rebuilt, and a vestry added at the cost of the rector. Some new seats have been placed in the nave. The reredos is of marble inlay, executed by Mr. H. Earp. Mr. Wallis, of Wragby, was the builder; Mr. Withers, the architect.

Dalby.—The parish church of Dalby has been rebuilt. The new edifice, though only a small one, is large enough to accommodate the whole of the parishioners. It is built in the Flowing Decorated style. Its exterior is of Ancaster stone. The architect was Mr. James Fowler, of Louth. Instead of a large west window, there are two single-light windows, and between these runs a projecting buttress, which carries an octagonal bell-turret; besides which the building consists of nave, chancel, and south porch. The whole is covered with slate. The interior is entirely of brick, banded with stone. The floor is paved with Minton's tiles. The fittings are of pitch pine. Mr. White, of Alford, has been the builder.

Outwell (*near Wisbech*).—The parish church at Outwell, in Norfolk, was reopened on Thursday, the 9th inst., after considerable repair and restoration. The roofs had for many years been much neglected; and had, consequently, fallen into a sad state. At the east end of the chancel a canal had been made so near to the walls as to cause them to give way very considerably; and, on examination, it was evident that many years ago an attempt had been made to remedy the evil by taking down the chancel walls to the level of the cills of the windows, and rebuilding them; but, as nothing was done to improve the foundations, the work was not successful. The walls again gave way, and some most unsightly iron ties had to be inserted. The chancel and the east end of the aisles have been entirely rebuilt. The old stones of the windows and buttresses are reset, without being refaced. A new roof has also been provided, in character with the other roofs. All the old roofs, excepting that on the Lynn Chapel, have been restored, at a considerable expense. New seats have been provided to accommodate 480 persons. The pulpit is of oak, with carving by Mr. Forsyth, of London. The old brass eagle found in the church has been refixed on an oak pedestal, and is now properly used. The paving in the chancel has borders of Minton's tiles. The cost of the works has been 2,200*l.*, and much has been deferred on account of want of funds. The architect employed was Mr. William Smith, of New Adelphi Chambers.

Brighton.—The new church of St. Mary Magdalen has been opened. It is of humble pretensions, and situate in a poor and densely-populated neighbourhood. The site is in Bread-street. The building is considered as a temporary church, and as a branch of St. Paul's, West-street. It is capable of holding 600 or 700 persons. The architect was Mr. G. F. Bodley; and Mr. Fabian was the builder.

Worcester.—The sculptures just completed by Mr. Boulton for the spandrels of the great east window of the cathedral are now placed. There are figures of angels, Saints Oswald and Wulstan, the four Evangelists, the Nativity, and Christ bearing the Cross; the angels holding scrolls. These figures stand out in bold relief, some 7 inches from the wall, between the two ranges of lights. Perhaps similar ones are wanting to balance them in the spandrels of the upper lights. Precedents for these spandrel carvings are found in Lincoln Cathedral and the transept windows of Westminster Abbey. The nave of the cathedral will very shortly be scraped of its whitewash, and the aid of the sculptor probably brought in to relieve the excessive plainness of the clerestory and triforium in that portion of the building.

Perry Barr (*Staffordshire*).—A new school-church here has been formally opened. The building, which has been erected from plans furnished by Mr. T. Plevins, is situate at the angle of the Aldridge and Perry Barr roads. It is in the Geometric style, and will accommodate 200 children. It has been erected at a cost of 800*l.*

PROVINCIAL NEWS.

Isle of Thanet.—Extensive alterations and additions are being made at the Isle of Thanet Union Minster;—new infirmary and fever wards, lavatories, bath, and nurses-rooms; also a detached chapel, boundary walls, and a long range of buildings used as stables, chaise-house, vagrants' ward, dead-house, coal-stores, &c. The four infirmary wards are each 75 feet long, 20 feet wide, and 12 feet high, the lower, and 13 feet the upper stories. The fever wards are each 20 feet square and 13 feet high. The upper window sashes are the patent of Mr. Edward Byng, Ramsgate, and admit of cleaning from the inside. There are four easy flights of stairs to the upper story, two leading to the open airing courts. The chapel is a brick and slate Gothic building, 61 feet by 37 feet, with an open-timbered roof. The architect is Mr. Francis Edwards, London: the builders are Messrs. Stiff & Richardson, Dover: Mr. S. Harrison is clerk of works.

Trowbridge.—The new Market-house, which has been erected by Mr. W. Stancomb, the lord of the manor, at an outlay of between 6,000*l.* and 7,000*l.*, has been opened. The architect was Mr. C. E. Davis, of Bath. The front of the building consists of an arcade, supported by six columns, the caps of which represent the four seasons and the trade of Trowbridge. This carving has been executed by Mr. G. Porter, of Bath, sculptor. The interior is 71 feet wide by 110 feet long; and a glass roof, set in ornamental iron work, supported by fluted iron columns, affords the building an abundance of light, which is also increased by the windows at the sides. Over the arcade are five rooms, well adapted for public purposes. Mr. W. Long, of Bradford-on-Avon, was the builder. The ironwork was supplied by Messrs. Stothert & Pitt, of Bath. The smiths' work was executed by Messrs. Davis & Son, of Bath; the plumbing and glazing by Mr. Joseph Berry, of Trowbridge; the plastering by Mr. Harris, of Trowbridge; and the carpentering by Messrs. Davis & Son, of Frome.

Reading.—Labourers have been employed, under the direction of Mr. W. Carter, in pulling down the last remains of Middle-row.

Bristol.—The volunteers' club-rooms, &c., at the top of Park-street, have been inaugurated with a banquet in the large reading-room. The building has a freestone front, and is surmounted with a square tower. The front entrance opens into a hall some 30 or 40 feet in height. The ceiling, which is grained, has been coloured in what the local *Times* calls the Owen Jones style of decoration. The principal room upon the first floor is the morning- and reading-room, 50 feet long by 25 feet wide. It is lighted by three windows on either side; and the ceiling is ornamented with three large plaster centre-pieces, from which depend chandeliers. The whole of the alterations in

the old building were carried out under the direction of Messrs. Fripp & Ponton, architects. Mr. Baker was the general contractor for the carpenters, painters, and plumbers' work; and Messrs. Hale & Co. supplied the gas-fittings. The large drill-hall, in the rear, is rapidly approaching completion. The dimensions are 100 feet by 50 feet, or 94 feet by 46 feet in the clear. The height of the hall in the centre is 35 feet. The hall is built from the design of Mr. Hansom, architect, whose plan was submitted to Mr. Barlow, C.E., and, after some slight alteration by that gentleman, was approved by him. The general contractor for the work is Mr. J. C. Harris, of Clifton; and Mr. Stephens has undertaken the masons' and Mr. Allen, of Clifton, the smiths' work. The cost of its erection will be under 2,000*l.* The racquet-courts are in course of erection, at the rear of the drill-hall. One of the courts will be 65 feet by 30 feet, and the other 60 feet by 30 feet. The cost of erecting the two courts will be about 1,500*l.* Attached to the racquet-courts will be gymnasium, smoking-room, dressing-rooms, and bath, supplied with hot and cold water.

Milton.—It is intended to erect additional blocks of buildings at the Milton Barracks. The tender of Mr. Palmer, of London, has been accepted for that purpose, and the building will commence at once. The cost will be nearly 18,000*l.*

Swansea.—A scheme for the erection of a large public hall for Swansea is now launched. About 1,700*l.* having been subscribed, a preliminary meeting of the subscribers has been held in the Guildhall.

Bury.—A memorial having been presented to the Town Council complaining of the heat, want of ventilation, and resonance of the new Corn Exchange, the Council have referred the matter to the architect.

Blackburn.—The committee of the new Exchange Company have let the works for their proposed new building, the foundations of which were completed long since; and operations will be commenced forthwith. The contractors are Messrs. Farrell, the contractors for the Assize Courts, Manchester; and the contract price for the completion of the building is 7,900*l.*

SCHOOL-BUILDING NEWS.

Tunbridge.—At Tunbridge School, extensive alterations are about to be made. The old school is to be raised, and a new one on a much larger scale to be built at the rear of the present edifice. An addition is to be made to the masters' house and library, and new stables and a laundry are to be built. The style of the building will be Gothic. The architect is Mr. Burnell, of London. Mr. George Punnett is the contractor. The tenders were as follows:—

	School.	Masters' House.	Stables, &c.	Total.
Holland & Hannen	£14,690	£2,720	£1,730	£18,940
Lawrence	14,590 ..	2,673 ..	1,650 ..	18,763
Ashby	13,723 ..	2,554 ..	1,669 ..	17,781
Brown & Robinson	13,455 ..	2,504 ..	1,655 ..	17,394
Mansfield	13,197 ..	2,492 ..	1,661 ..	17,300
Coleman	12,825 ..	2,485 ..	1,589 ..	16,794
Punnett	12,009 ..	2,438 ..	1,482 ..	15,310

The quantities were supplied by Mr. Roberts' architect and surveyor, London. It is understood that the works will be completed in about fifteen months.

Wargrave (*Reading*).—The new schools at Wargrave have been opened by the Bishop of Oxford. The building is situate on the high ground to the right of the public road leading from Wargrave to Hare Hatch. It has been erected for the accommodation of the children of Piggott's charity school, and the children of the national school. The four sides of the structure are to some extent ornamental. The length of frontage is upwards of 100 feet, and the wings stand 10 feet forward from the centre portion. The right wing consists of a large class-room and a board-room. The infant school, 20 feet by 18 feet, is in the left wing; and the master's house is at the back. In the centre of the building is a lofty apartment 70 feet long, and which can be partitioned off for boys' and girls' classes. A turret rises from the central roof. The body of the building is built with flint and white stone. The architect was Mr. Ferrey, of London; and the builder, Mr. Owthwaite, of Henley. The estimated cost of the building was 2,050*l.*; the actual cost 1,920*l.* The site was presented by Lord Braybrooke, with a donation of 100*l.*

Henley.—The new school for the district of Highmoor has been opened. The building was commenced at the close of last May, by Mr. R. Scott, of Henley, under the superintendence of Mr. Hews, surveyor (who has given his services gratuitously), and consists of a school-room for forty children, with a residence for a mistress,—all built of flint and brick.

Liverpool.—The new schools in connexion with Great Homer-street Wesleyan Chapel have been opened. The schools, which are in Prince Edwin-street, and of which Mr. C. O. Ellison was architect, will accommodate about 650 scholars.

WHY NOT A NEW LANGUAGE?

Sir,—Now that the subject of the "new style" is being discussed in your columns, it may interest some of your readers to know that the propriety of introducing a new language also is advocated in the pages to which I have the honour of being a humble contributor. I write, sir, for the *Hourly Hoaxer;* and I assure you that the most horrible murder or ghastly tragedy will fall flat upon the public ear owing to the "cut and dry" phraseology in which we *littérateurs* are wont to present it. I have no doubt that it is the same with architecture; and feel sure that, if properly advertised, the "new style" for Anno Domini 1863 will prove a success.

But, if our architecture is worn out, and, as it were, nothing better than dry bones, it must not be forgotten that neither can our language "be said to be fitly representative of the nineteenth century; not having resulted from the growth of modern ideas; and emanating, as it does, from an entirely different state of society." We too, in the Press, have met our difficulties "with an infinite originality of genius,"—by introducing slang phrases,—by adopting foreign words—to give piquancy to the composition, and cover the limited extent of our resources; but it appears to me that nothing worthy of the present age will be written until we possess a language "more capable of expressing our sentiments and more adaptable to modern exigencies than any at present in use." The language of England, like its architecture and its navy, must be reconstructed. "Modern civilization is pre-eminently distinguished by boldness of thought and subtlety of investigation."

I can only vaguely outline for your readers the most original scheme for a new language which has appeared in the columns of the *Hourly Hoaxer*, and refer them to its pages for more detailed information. The writer suggests that musical notes should be substituted for the letters of the alphabet: each chord should spell a word, and so sentences would be formed, and so on. Our newspapers would then present the appearance of the last new waltz; and the pen, like the pencil, would "speak the tongue of every land." For conversation and public speaking a small stringed instrument would be carried about. The originator of "this style" says: "Language would then combine the beauties of music; and music have all the advantages of poetry of the highest order: we should then have no more 'songs without words.' This style of language would also be universal; and, being confined to no nation or continent, would be very convenient for international exhibitions."

The subject is so great and interesting, that it is to be hoped literary men and public speakers may be awakened to the serious consideration of such a contingency as the institution of a new language; and I am quite sure the public will have no prejudice against its advent, but would rather feel interested in its success; for it has often puzzled them why writers and orators go on contented with repeating, *ad nauseam*, the ideas handed down to them by their ancestors.

Sympathizing, as I do, sir, with those gentlemen who find it difficult to supply the public with original architecture at so much the yard,

I remain, &c.,

A Penny-a-liner.

JENNER'S MEDITATIONS ON THE BAYSWATER FOUNTAINS.

Furtively removed from my first selected prominent position in company with heroes and kings,—a well-earned one, if what the poet says be true,—

> "A wise physician, skilled our wounds to heal,
> Is more than armies to the public weal,"—

and deposited here somewhat abruptly, and by dark, in these sequestered shades; seated in my arm-chair; having much time for quiet meditation and serious contemplation of the scenes around me; my eyes (and, I may feelingly add, my nose) have been naturally directed to what lies nearest; and sadly have I bemoaned the gross waste of public money and the wanton destruction of one of the prettiest features of these noble gardens.

For twenty thousand pounds, and doubtless a supplemental little bill "looming in the distance," there are four filthy tanks (with such slimy, putrefying contents that, were I not of bronze, I should have been prostrated with typhoid fever long since); some affairs called fountains, forsooth (on which, though I pass my strictures, I burn to descend from my pedestal and give professional aid, presenting as they do various stages of water-work incapacity); a smoke-vomiting, ugly engine-house, obstructing the fine view up the Serpentine,—a two-year-old disgraceful nuisance;—the destruction of many fine old elms; the dispersion of the pleasant cawing rooks, and the annihilation of all the quiet and rustic character of this quarter, once so dear to duck-feeding children.

My thoughts have naturally turned to what might have been accomplished: my spirit has flitted across to the neighbouring wonderful International Exhibition; and I find that, for one quarter the sum expended, a mass of rockwork, close to the Bayswater-road, might have been constructed which would have concealed the engine-house; and over this rockwork, by means of Gwynne's centrifugal pump, one of the finest cascades in England might have been poured; the present path crossing over the impetuous stream by a rustic bridge; and thus the whole of the water at this end of the gardens would be preserved and beautified. A much less expensive plan would have been to have utilized the fall from the Round Pond, and conducted a small cascade under the arches of the still-existing old bridge, paying a certain rent for supply from the neighbouring water company: and it may even now be worthy of consideration whether, after all, the whole of the existing hideous rubbish, the laughing-stock of all intellectual observers, had not better be swept clean away, and things brought (including my statue) in *statu quo ante.* But, alas! the fine old trees are not so easily replaced, nor the cawing rooks recalled.

Edwd. Jenner, M.D.

THE GOTHIC WORKS OF THE DAY.

Sir,—We frequently hear men trumpeting in your valuable paper about a new style. Would it not be better that old models should be fairly copied and understood before we talk so much about new? A great neglect, and of course an error, makes its appearance in the Gothic work of the day, merely from want of a closer inspection and proper measurements taken from our ancient works; viz., the battering of the faces of all buttresses connected with the tower, which was universally carried out by our architects in the Middles Ages. My advice is, to know and to be thoroughly acquainted with our old models before we bother our brains about a new one.

A Mediæval Mason from my Youth.

QUANTITIES AND COMPETITION IN GLASGOW.

In the sensible article on the above subject, which appeared in the *Builder* last week, reference is made to the mode of estimating artificers' work in Glasgow. Perhaps some particulars of our system may be interesting to your readers, if the discussion on the subject does no further good.

The work of taking out quantities from the architect's plans and specifications is invariably performed by a measurer,—a business synonymous, I presume, with that of the surveyor in London. Each item is minutely particularized in a schedule, with the amount of each, and each trade has a separate schedule. The contractor fills in a rate to each item, and extends the sum to the column prepared for it, the amount of which sums decides the competition. At the end of the schedule, the terms of contract and the description of the materials to be used are set forth; and the letter of offer is written out and left blank, to be filled up and signed by the contractor. The contract is made on the plans and specification, in conformity with the rates contained in the schedule and corresponding slump [or gross] sum in letters of offer, and to the extent of the measurement. It is usually stipulated that the work shall be measured when finished, and charged at the contractor's rates, regulated also by the slump sum. The architect employs the measurer, who is paid one half by the proprietor, and one half by the

successful contractor, at the rate of from 1 to 2 per cent. on the amount of the measurement.

Measuring constitutes a business here, the members of which are both numerous and respectable, and generally enjoy the confidence of all concerned. The advantages are appreciated of having a middleman, who is equally in the interest of both proprietor and contractor. The system works well, there being few disputes, considering the amount of business transacted. The danger of the measurer making too much of his business—making the items of his measurement needlessly minute, and so giving the contractor an opportunity of increasing the amount of the cost—is understood to be counteracted by the competition among contractors. The only disadvantage at present felt in the system is that of the measurers having arbitrary rules of measurement, such as allowances over and above the exact quantities, not always uniformly followed, nor generally understood. This, however, does not apply to the mason and brick work, regarding which specific rules were mutually agreed to and published some years ago, as the "Glasgow new mode of measurement," and which have since been followed.

If the architect furnish sufficient drawings and specification, and exercise moderate supervision, there is little fear of abuse in the system. The schedule ought in no case to supply the place of a specification; nor ought the specification to be left to the measurer,—a temptation to do which occurs when the architect is pressed for time, and the building of an ordinary character.

ROBERT GOODWIN.

TAKING OUT QUANTITIES; AND COMPETITIONS.

SIR,—Your very just remarks upon "Quantities and Competition" cannot fail to produce a beneficial effect, and lead to some discussion on that hitherto neglected subject, which, it is to be hoped, will bring about some very essential reform. That such a state of things should be allowed to exist in 1862, is not very creditable to the building profession. All who glance at your lists of tenders—and there are very few of your readers that do not—must often be impressed with a feeling of disgust at the disgraceful disparity in the amounts of builders' estimates; but few ever think of looking to the basis upon which these estimates are prepared for an explanation, except those well acquainted with the subject. The fact is, that a very great deal depends upon the architect, the surveyor, and the builders that estimate. As regards the first, his details may be very familiar to one builder, whilst another has never seen any of his productions. If it be a Gothic architect, the former builder's tender is almost invariably the highest, and the reverse is the case if it be a Classic architect. This is more noticeable when builders take out their own quantities. Exactly the same may be said as regards the surveyor; for, if a builder have once made an estimate from a surveyor's quantities, he will be acquainted both with his accuracy or inaccuracy, and his style of describing details; and he will prepare his estimate in accordance with his former experience. Again, surveyors may hold the same relationship to the architect that the builders do: one may be familiar with the details of the latter; and another may be as ignorant of them as the man in the moon; but, even when architects and surveyors have been connected for years, in the majority of cases the quantities are incorrect. The inaccuracy, however, is not always in favour of the builder, as your remarks would seem to imply.

Now, as regards builders and contractors, any person that has had experience with more than one of these gentlemen knows that their individual ideas differ as much as the amounts of their tenders. A building erected by one may cost one-third less than if erected by another; and even in cases where clerks of the works are employed this is sometimes the case. I have seen as bad workmanship and material produced by one of our most eminent metropolitan builders as ever disgraced the productions of a Notting-hill speculator; and there is scarcely an architect in London whose designs he has not carried out; consequently, he knows what amount of bad workmanship, &c., he may treat each to; and he does not fail to profit by his experience. His men are almost all underpriced, and his foremen are noted for the strength of their lungs and their muscular powers. I need scarcely say that this is not an isolated instance; but, that it will account, in a great measure, for the difference in contractors' estimates, cannot be denied. I.

PAYMENT AND TREATMENT OF ARCHITECTS' ASSISTANTS.

SIR,—I am sure that every architectural assistant of any experience will heartily concur with every word contained in the excellent letter of "Z. P. S. Y." in the *Builder* of the 4th instant, on the inadequate remuneration they receive for their services; for, as he truly states, the pay of a competent assistant does not exceed, in the majority of cases, the wages of a journeyman mechanic.

The chief cause of this deplorable state of things is the present crowded state of the profession, brought about mainly by the system of taking in pupils wholesale: in fact, with many architects, this is their principal source of income. These pupils are lured into the profession partly by the flattering prospects held out to them on entering; and partly by the notion prevalent with the public that it is a gentlemanly money-making profession, and that the duties are of an exceedingly light and easy character; and they only find out, when it is too late to repent, that they have entered a profession where they will have to work like galley-slaves (but with a T-square instead of an oar) to secure a bare existence.

Now the question has been raised, I think we ought not to allow it to drop, as I think that a great deal might be done by combined action towards reforming our position; and I am confident that, as a known friend of progress, you will give us the benefit of your assistance in the matter.

There is another subject on which architects' assistants feel very strongly,—the question of the Saturday half-holiday, which has been adopted in very few London architects' offices: indeed, as yet, and in some of these, it has been obtained only by means of what I must call "a strike."

All the public museums, libraries, and galleries are for the most part virtually closed to us for the purposes of study, from being open only during the daytime.

In conclusion, I am certain that architects would find it very much to their advantage to give this slight relaxation to their assistants; and I would suggest that the names of those few architects who have been enlightened enough to adopt the Saturday half-holiday should be published in the *Builder*. The claims of every other class of assistants have been supported by the press; and I am sure that the architectural press would earn our gratitude by doing the same for us.

As an instance of the treatment that assistants receive in some architects' offices, will it be believed that in the office where I have the misfortune to be engaged, we have had the greatest difficulty in obtaining even a single day to visit the International Exhibition?

ANOTHER VICTIM.

PENRYN GRANITE.

SIR,—We observe in your number of the 4th inst., that the specimens of granite exhibited by us in the International Exhibition are censured by the Jury in their report on account of "faulty design," while the character of the "noble material" is admitted, and we have had the satisfaction of receiving the award of a medal in very honourable terms.

We are sorry to come under the censure of the gentlemen who have reported for the Juries, and hope you will allow us to explain that our object was simply to exhibit duplicates of designs which have been intrusted to us for execution; and the inquiries made by the public during the Exhibition have proved that they have received very favourable notice. W. & J. FREEMAN.

PARIS PERMANENT UNIVERSAL EXHIBITION.

SIR,—So many workmen seeking employment apply here (Leadenhall-street) daily for engagements, that you will do your artisan readers good service by saving their time, if you will allow me to notify to them, through your columns, that this is the office of negotiation for exhibitors, and unconnected with the *construction* of the building, which is entirely under the control of the architect, Mons. Liandier, of Paris. A. JENOURE,

Secretary to the British Commissioners.

DR. CROLY'S MONUMENT: ST. STEPHEN'S, WALBROOK.

SIR,—The parish authorities of St. Stephen's, Walbrook, have, within the last week or two, placed on the walls of this church the bust of their late eminent rector, Dr. Croly. This bust was a few years since presented at the Mansion-house to Dr. Croly as an expression of esteem and regard by many parishioners and friends; and was bequeathed by him to the parish, over which he had been the pastor for a quarter of a century.

Can you not urge upon the authorities of St. Stephen's the desirability of selecting a better position for this artistic memorial than the present one? It is placed nearly at the end of the left-hand aisle, and so high and altogether so inconveniently, that it is with difficulty a visitor can get an imperfect view of it, or read the epitaph on the marble beneath it.

Any one acquainted with our cathedrals or our old London churches which escaped the Great Fire of 1666 knows well that our forefathers had the wisdom and good taste to avoid placing monuments or inscriptions in inconvenient or inaccessible places.

In Walbrook church there is ample space for doing justice to the monumental bust of Dr. Croly. I would, for instance, point to the opening on the right-hand side by the pulpit, where the transverse aisle passes from north to south. All that is requisite is, to remove a few feet of panelling, and to incur the slight expense for labour necessary in making the transfer from the present shady altitude. UTILE DULCI.

Books Received.

Sketch of the Mode of Manufacturing Gunpowder at the Ishapore Mills, in Bengal; with Experiments on Value of Charge, Windage, &c. By Col. WILLIAM ANDERSON, C.B., late Agent at Ishapore. With Notes and Additions by Lieut.-Col. PARLBY. London: Weale, High Holborn.

THE word "Sketch" scarcely indicates the extended and detailed nature of this volume of 300 pages imperial octavo. The subject of which it treats is pretty fully discussed in all its bearings; and the result is an interesting and important treatise on gunpowder, its history and composition, mills and manufacture, powers and uses; illustrated by various engravings, notes, and appendices.

Gunpowder is known to have been in use from extreme antiquity. The Chinese, it appears, have records of its existence for 2,000 years amongst themselves; and, although not much used by them in warlike operations till comparatively recent times, the Indians are known to have used it in war many hundreds of years since.

"Philostratus, who lived about the year 244, wrote the life and travels of Appollonius Thyanœus, a philosopher who is considered to have made extended travels in the East and in Hindostan. On the authority of this traveller, it is recorded, 'that when the Indians of towns are attacked by their enemies, they do not rush into battle, but put them to flight by thunder and lightning.' On the same authority it is said, 'that Hercules and Bacchus, attempting to assail the Indians in a fort where they were intrenched, were so roughly received by reiterated strokes of thunder and lightning launched upon them from on high by the besieged, that they were obliged to retire.'"

Marcus Græcus, in the ninth century, describes several ways of encountering an enemy by launching fire upon him; and among others gives the following: Mix together one pound of live sulphur, two of charcoal of willow, and six of saltpetre; reducing them to a very fine powder in a marble mortar. He adds that a certain quantity of this is to be put into a long narrow and well-compacted cover, and so discharged into the air. This is a clear description of a rocket; and the entire extract speaks of the composition and the effects of gunpowder. The composition was known as Greek fire. There were several kinds of Greek fire, however, spoken of by different authors.

Roger Bacon, in 1216, mentions that "from saltpetre and other ingredients we are able to make a fire that shall burn at what distance we please." The other ingredients appear to have been studiously concealed at first under a transposition of the letters: thus—*lura mope can ubrie* stood for carbonum pulveri. The celebrated friar and magician afterwards revealed his secret; and the ingredients appeared by name in subsequent works.

When Toolwee Khan, in 1228, after the death of Chungeez Khan, marched from Central Asia to the southern districts of China, he is said by Persian historians to have betaken himself to Jadoee, for the purpose of discomfiting a large Chinese party. But "the Tatar magicians or sorcerers had a means, by the use of certain stones thrown into the air, of producing heavy clouds, thunder, lightning, and a discharge of rain or stones. Incantations, forms, and ceremonies, were previously in secret performed."

A Toorkee Dictionary gives Juduh kash; Arabic, Hejr-al-metr; Persian, Sung-yuddah;—"a stone used by the Tork magicians; which, being thrown into the air, produces all sorts of convulsions of the elements; but which are often turned by the Almighty against those who employ such impious means."

In the metaphor snow of China, Colonel Anderson traces well-purified saltpetre; and fairly argues, from the adoption of a foreign name, that the substance named did not exist in any country nearer Arabia than a frontier station of China. This last appellation is constantly applied to articles reaching Persia from any stations eastward of the meridian of Herat; and any produce of Bokhara would, under certain periods of history, have been considered Chinese.

Of the buildings requisite in the manufacture or storing of gunpowder, the author of the work before us gives the following precautionary remarks:—

"The distance between buildings containing powder should be beyond the range of the quantity contained in each house. The range of powder forced by resistance into one direction is as the quantity; but, when left unconfined, will perhaps be as the square root of the quantity. The distance between the Ishapore Mills, say 60 yards, is proved by experience to be well calculated for about 80 to 100 lb. of powder, and may be assumed as the unit; hence for the press houses and corning houses, containing upwards of 400 lb. of powder, the interval should be double at least.

All the houses should be as large as possible, for the purposes of room in which to work, and for free circulation to the fluid in case of explosion: they should also be as high as possible, to remove all beams and rafters from the flame: these should also be as heavy as possible, with due regard to economy and convenience, that they may be carried by the explosion to as little distance as possible.

From the flight of burning beams or splinters lies the great secondary danger from explosion.

Perhaps the better form of walls would be strong corners or plinths in any position from which it is desirable to turn the blast, with fillings-up of very weak masonry, to give way before the fluid in any more safe direction.

As few door or window frames as possible should be inserted, with as little wood-work as is compatible with convenience."

The author and the editor give some interesting particulars as to attempts to use other compositions as substitutes for gunpowder, including gun-cotton, or pyroxyle; powder made from nitrate of soda instead of nitre proper, or nitrate of potash; powder made from nitrate of ammonia; and powder made with chlorate of potash; in respect to which last, by the way, we observe a recent suggestion made on the erroneous idea that this is a novelty in such compositions; whereas this astonishingly powerful compound was suggested as a substitute for gunpowder by its discoverer, Bertholet, in

1785; and it was actually used by Napoleon I. in his wars; but the disadvantages and dangers attending the use of compositions containing chlorate of potash have been found greatly to overbalance any advantages to be gained from their superiority in projectile force.

At a critical and important epoch in the art of war such as the present time, and especially with so many thousands of volunteers on the *qui vive* as to everything warlike or smelling of gunpowder, the publication of a work such as this on the grand material is important.

Beeton's Dictionary of Universal Information: The Sciences, Arts, and Literature. London: Beeton.

Beeton's "Dictionary of Universal Information" appears to be intended to consist of a series of separate dictionaries, each comprised within its own alphabetical limits, apart from the others. The present volume is the first of a dictionary of the sciences, arts, and literature; and ends with the word "Confiscation." So far as it extends, the work seems to be well compiled: the type is small, and the volume contains an immense mass of information;—not without its errors, of course; for no such work will ever be quite correct in all its quiet corners;—*e.g.*,—Bromine does *not* produce a sore immediately on contact with the skin; although the hydracid of Fluorine does;—but, on the whole, this promises to form an excellent dictionary, and unusually free from errors.

VARIORUM.

"Meteorology; its Study important for our Good: with a Description of the Anemometer at the Birmingham Institute. By T. L. Plant. Birmingham: Plant, Camp-hill. 1862." The chief purpose of this pamphlet is to give a description, illustrated by engravings, of Osler's anemometer, whereby wind and rain are registered at all times as they occur. The subject of meteorology is an important one, and is increasing in public interest ever since our intelligent "clerk of the weather," Admiral Fitzroy, took his seat at the Admiralty.

Miscellanea.

Salisbury Cathedral.—The Ecclesiastical Commissioners for England having voted a sum of 10,000*l.*, together with interest thereon at the rate of 3*l.* per cent. per annum from the 29th day of September, 1860, to be expended in effecting such structural repairs and improvements in Salisbury Cathedral as have become necessary by reason of its great antiquity, and of the want of due reparation in times past, the Dean and Chapter intend to proceed with the works under the direction of Mr. G. G. Scott, who has made a survey of the building, and particularly of the tower, and prepared plans and specifications of the works, chiefly external, proposed to be done.

The Thames Embankment; Metropolitan Board of Works.—At the ordinary meeting last week, the chairman called attention to the steps required to be taken for giving effect to the provisions of the Thames Embankment Act. He said that important questions had arisen with reference to certain deviations which were necessary, and it was most important to fix an early day for taking these matters into consideration: he would suggest that some day should be appointed which would not interfere with the ordinary meeting of the Board. After considerable discussion, Mr. Healy moved that the engineer report to a committee of the whole Board on the scheme of the Thames Embankment. The motion, having been seconded by Mr. D'Iffanger, was passed.

The Wroxeter Excavations.—Within the last few weeks operations have been recommenced at Wroxeter. The site selected was a field which adjoins the old Watling-street road, and where the ancient town wall and city gate are alleged to have been situate. Foundations were observed showing where the wall had been, but there were no traces of the city gateway. The committee have also put men to trench the field adjoining that which goes by the name of the Cemetery, and there excavations have been recently carried on. Several cinerary urns and earthen bottles, one lachrymatory, and a silver buckle, have been found. Six fragments, of some white metal, which when put together form a circular plate, evidently a speculum or mirror, have been found. An earthen lamp has also been dug up, and the men have laid bare some underground building, not yet examined.

Roof Raising.—It is stated that the Sainte-Marie circus at Rome has just been raised about 7 feet, by the roof being pushed up in a single block, in order to enable performances to be given similar to those by which Leotard has gained celebrity. The operation was effected, the account goes on to say, not only without accident, but without even a pane of glass being broken in the construction.

Paper Materials.—Dr. Collyer has perfected a process, under which he claims that one ton of "half-stuff," worth 26*l.* can be produced for from 12*l.* to 16*l.*, according to the material used, which may be wheat or oat straw, flax waste, Indian corn stalks and leaves, refuse sugar cane, &c. He estimates that upon a capital of 400*l.* a yearly profit of 3,000*l.* may be realized! This announcement tends to explain Dr. Collyer's adverse interest in *Zostera marina*, against the claims of which to notice as a substitute for cotton he recently gave his opinion in the daily press.

The Congregational Union Memorial Hall. The Congregational Union of England and Wales have had a three days' conference in the Weigh-house Chapel, London, at which the report of the committee on the "Memorial Hall" was read. It stated that the Congregational library had been used for denominational purposes for about thirty years; but the wants of the body had outgrown the capacity of that building. What the committee contemplated was the building of such a pile as would suitably represent the sentiments and feelings of the Congregationalists of the year 1862, in relation to the true principles of Nonconformity. The building should contain offices capable of accommodating the committees representing all the denominational movements having their centres in the metropolis. There should be a large hall capable of holding at least 1,000 persons. To erect such a building, a sum of not less than 24,000*l.* would be required. A resolution approving of the project was unanimously adopted.

The Burial-place of John Milton.—The interior of the ancient Church of St. Giles, Cripplegate, has been partially restored in honour of the memory of John Milton, the author of "Paradise Lost," whose remains are here interred. A monument has also been erected, as a memorial of the poet, in the south aisle of the church, near the chancel. The cenotaph is nearly 13 feet high, and about 8 feet wide at the base; and the body of the work, consisting of carved Caen stone, is divided by pillars of coloured marble, thus forming three canopied niches. In the central niche the bust of the poet, which was executed by Bacon, and is still in a fine state of preservation, has been placed. Beneath this is the marble tablet, with the following simple record:—"John Milton, author of 'Paradise Lost.' Born December, 1608. Died November, 1674." The date of his father's death in 1646, and the name of Mr. Samuel Whitbread, who placed the tablet in the church in 1793, are also engraved thereon. The cost of the restoration of the church and the memorial has been defrayed by public subscription.

Antiquarian Diggings at the Barmekyne of Echt.—The *Aberdeen Journal*, in an interesting notice of explorations at the curious fort called the Barmekyne, which is situate on the summit of the hill of Dunecht, in Echt parish, Aberdeenshire, says:—"In view especially of the recent diggings on the Cheviots, which have brought to light so many traces of the early tribes, it is of some public interest to mention that, lately, Lord Lindsay commenced some explorations at the Barmekyne fort. His lordship's taste in such matters is well known; and he had the valuable assistance of Mr. Stuart, secretary to the Scottish Society of Antiquaries. The entrances to the entrenchments were found to be circuitous. In the way of the actual discovery of remains at the Barmekyne not very much has to be told; but the foundation or pavement of a hut was found, resembling in its features those recently discovered in Northumberland, on a spot upon the hill near to which was discovered, several years ago, a hammer, now in the museum of Marischal College. The hut is supposed by Lord Lindsay to date as far back as Wrad, one of the Pictish kings. The interest shown by his lordship in carrying on these diggings led, indirectly, to a still further antiquarian discovery, or rather to the value of a former discovery being brought out. One of the tenants now brought a pillar stone, which he some time ago discovered on the shoulder of the Barmekyne. This contained within a circle a Greek cross of a primitive type; and, as suggestive of the Transition period between the Pagan pillar stones and the Christian cross which followed, is of great value and interest in an antiquarian point of view."

Completion of the great Windows in Glasgow Cathedral.—The four great windows of the cathedral at Glasgow—the east, the west, the north, and the south—presented by Government, by the Duke of Hamilton, by the Messrs. Baird of Gartsherrie, and by Mrs. Cecilia Douglas of Orbiston, are now completed by the erection of the Douglas window. The first window of the series, which commences at the north-west angle of the aisle on that side, is to contain the story of Adam's Fall. In those which follow we shall have, in chronological order, representations from the the Old Testament in fifty-two pictures. In the great west window, designed by Moritz von Schwinde, are depicted four important events in the history of the chosen people. In the great north window, by Heinrich von Hess, are figures of the prophets who prophesied the coming of the Saviour, with St. John the Baptist, who proclaims the advent.

Hay's Waterproof Glue and Varnish.—We are constantly asked to recommend some material to be applied to damp walls. If the testimonials which have been forwarded to us with reference to Hay's patent waterproof varnish may be depended on, here is a material that will answer the purpose. Thus the proprietor of the King's Rooms at Southsea writes as to part of his building:—"It stands close to the sea; is built over a tank; and, by the negligence of the builder, the mortar used in its construction was mixed with sea water: of course the walls were perpetually steaming: every remedy was tried in vain; till we had recourse to the patent glue, which, I am happy to say, proved a complete success. In forty-eight hours after its application we were enabled to paper the walls; and, during the whole of the past humid spring, not a spot of damp has made its appearance." It is certainly worth a trial. The glue itself seems very strong.

Distribution of Prizes by the Painters' Company.—We have already mentioned that this year the Painters' Company did not have an exhibition of their own; but certain judges appointed by them proceeded to the International Exhibition and awarded prizes for work deserving such notice, the principle of the award being that it be made to the person performing the work, and not to any firm merely getting up the work by the aid of various workmen. The prizes were presented on Saturday last by the master, Mr. J. Comfort, in full court, at the ancient hall of the company, to the following; viz.;—Mr. J. Kensett, for graining; Mr. W. Read, for marbling; Mr. J. Bradley, for marbling; Mr. J. L. Coulton, for decoration, a silver medal each. To Mr. W. A. Grant, for graining; Mr. W. Maslin, for marbling; Mr. W. Pitman, for writing; Mr. H. Earle, for decoration, a bronze medal each. To Mr. G. Lainson, for decoration, a certificate of merit; and honourable mention was made of decorative work by Mr. James and Mr. J. Rodgers, of Sheffield, and to Mr. Pembury, for writing in an altar-piece by Messrs. Cox.

A New Nail-making Machine.—The *Standard* says:—"To the already numerous features of interest contained in the machinery annex at the Great Exhibition has lately been added a wonderful machine for making nails, due to the ingenuity of Mr. C. Gustafson, a Swede. Iron nails hitherto used have either been forged or cut by machinery from sheet-iron or iron-wire. Nails thus made are necessarily costly: the first-named by reason of the slowness of the manufacture, and the two latter by using too expensive material. This new machine supersedes all others by combining in itself the process of rolling, pointing, cutting off, and heading, and produces from bar-iron an excellent nail at very low cost. The rapidity with which the nails are produced by this invention is truly marvellous. Using bar-iron three-eighths of an inch square, the machine, with the labour of only one man or even a boy, will turn out in a day of ten hours as many as 15,000 three-inch nails. The nails produced are of the very highest quality, the nail being compressed by the rolling process, and always having the grain of the metal in the direction of the length. The nails are formed with fluted sides, which is the most advantageous of all forms, but very expensive to produce by any other process hitherto resorted to. By slightly altering and readjusting certain parts of the machine, different sizes and forms may be produced. In working iron the bars are heated red-hot in a small furnace placed at the side of the machine; but, as no fire is allowed in the Exhibition building, the machine can only be shown working such metal as can be worked cold. The practical efficacy of these nail-making machines is placed beyond all doubt by the fact that they have been tested by the experience of two years' constant work."

A Working Men's College at Ipswich.—A public meeting was held at the Town-hall, Ipswich, on the 7th instant, for the purpose of inaugurating a Working Men's College, for which preparations have been making. The chair was occupied by Mr. Allan Ransome. A flourishing institution is expected to be established.

Fatal Scaffold Accident.—On Monday, Mr. Langham held an inquest at Charing-cross Hospital, touching the death of Henry Bitterson, residing at No. 11, Bolsover-street, Marylebone, who expired in the above hospital on Friday last. It appeared that deceased was a painter; and whilst engaged with others in painting the front of the Union Club-house, Trafalgar-square, by some means the boards on which deceased and the other men were standing were overturned, and they were all precipitated into the stone area beneath. The jury returned a verdict "That deceased died from fracture of the skull from accidentally falling from a scaffold."

Maps of the American War.—Messrs. Bacon & Co. have published a series of cheap maps, of interest at the present moment. The "Shilling Military Map" shows the whole of the American states and territories in three colours, as they are now divided—Federal, Confederate, and Border Slave States. The "Virginia and Maryland" designates over 3,000 towns and streams around Richmond, Washington, and Harpur's Ferry, and supplies a want; while the "Shilling Army Map" is projected on a scale which admits of some interesting features. The names in the first might advantageously be a little clearer; and any subsequent issues of the last should be dated.

Sales by Auction: Materials for the Valuer.—At the Mart.—By Messrs. Edwin Fox & Bousfield.—Freehold estate, known as "Great Doods," Reigate, Surrey, comprising residence and grounds, in all 63a. 3r. 29p. of land—sold for 13,000*l.* Freehold, 2a. 3r. 36p. of building land at Reigate—650*l.* Freehold ground-rent of 18*l.* 10s. per annum, secured upon houses in Kingsland—440*l.* Leasehold residence, No. 13, Delamere-street, Paddington, term unexpired 86 years, let at 65*l.* per annum, ground-rent 8*l.* 10s. per annum—670*l.* By Mr. Murrell.—Freehold premises, comprising factory, warehouse, stabling, and dwelling-house, in Moor-lane, Cripplegate, let at 115*l.*—2,250*l.* By Mr. Marsh.—Freehold dwelling-house, 14, Mellor-street, Bermondsey, let at 26*l.* per annum—sold for 250*l.* Freehold, eight houses, 3 to 9½, Marble-court, Mellor-street, let at 123*l.* 18s. 6d. per annum—1,100*l.* Freehold, eight houses, 1 to 8, Gloster-place, Upper Clapton, let at 116*l.* 10s. per annum, subject to a lease of 76½ years from 1811, at 30*l.* per annum—310*l.* Leasehold, six houses, in Newington-causeway, let at 91*l.* 10s.—term unexpired, free of ground-rent, 47½ years—610*l.* Leasehold, three houses, 44, 45, and 46, Hill-street, Walworth, let at 58*l.* 10s. per annum, ground-rent, 9*l.* 9s., term 68 years from 1822—320*l.*

The Census.—The first volume of the census for England shows that, on the 8th of April, 1861, the population of England and Wales, with the Isle of Man and Channel Islands, including the army at home and the navy and seamen in the ports, rivers, and creeks—that is to say, all the persons in the kingdom—amounted in number to 20,209,671. The returns for Scotland having been also revised, the population of Great Britain on that day is found to have been 23,271,965; and the returns for Ireland, when the revision of these also is completed, will bring the population of the United Kingdom to above 29,000,000. The increase in England and Wales alone since the census of 1851 has been 2,138,615, notwithstanding that, in the interval, 2,250,000 persons emigrated from the United Kingdom, of whom it is calculated that 640,316 were English. Since the census of 1851, the male population of England and Wales has increased 11·33 per cent.; the female population, 12·50 per cent. The excess of females over males—365,159 in 1851—had grown to 513,706 in 1861. These figures do not include the army, navy, and seamen out of the kingdom. On the census night 62,430 persons were on board vessels in the harbours, rivers, and creeks of England and Wales, without reckoning persons in barges on canals: in the metropolitan district, 8,084 persons were on board vessels in the docks and the Thames. In England and Wales, 124,962 persons were in workhouses and workhouse schools, 13,456 in hospitals, 24,207 in lunatic asylums, 26,395 in prisons and reformatories, 23,598 in orphan asylums and other principal charitable institutions, without reckoning in any instance the official staff in charge of these institutions: 80,839 persons, military and families of military, were in barracks.

Accident at Tottenham.—For the last two or three months several hundred men have been employed in the construction of a large building, intended for an oil-cloth factory, at Greenpark, Tottenham, between Philip-lane and Hanger-lane. Whether the side walls had been run up to a height out of proportion as compared with their width, or the late heavy rains injuriously affected the work by washing away out of the joints the binding portion of the cement, the whole has tumbled down before it was completed.

Preserving Wood.—All fence-footings, gate-posts, garden stakes, and timber that is buried in the earth, may be preserved from decay by the following simple process:—Take 11 lb. of blue vitriol to twenty quarts of water: dissolve the vitriol with boiling water, and then add the remainder. The end of the wood is then put into the solution, and left to stand four or five days: for shingles three days will answer; and for posts 6 inches square, ten days. Care should be taken that the saturation takes place in a well-pitched tank or keyed box, for the reason that any barrel will be shrunk by the operation so as to leak: instead of expanding an old cask, as other liquids do, this shrinks them. Chloride of zinc will answer the same purpose, but it is dearer.—*Exchange.*

Purifying Water from Lead.—In a letter written some time ago by Dr. Faraday to Sir John Burgoyne on this subject, with reference to military stations near the sea, Dr. Faraday says: There is much difference and uncertainty about the mutual action of lead and water in different cases. When rain-water falls upon surfaces of lead, it is apt to act on them; and the water thus contaminated, by standing exposed to air, generally clears itself from the dissolved lead; the metal separating as a carbonated precipitate, and falling to the bottom. But when the sea spray has access to the leaded surfaces, the action of the rain-water is such that the dissolved lead does not separate in this way; or, if it does, only after a much longer time. It is such water as this that I recommend to be treated with carbonate of lime. Enough whitening or levigated chalk is to be mixed with the fluid to make it of the consistency of good milk (though more will do no harm), and the whole is either to be filtered or to stand until clear. I have never yet found any sample of water, poisoned as above, that was not freed from the lead by this process.

Cut-throat Lane; Chalk Farm.—Almost every part of England has its "Cut-throat-lane;" a lonely by-way, which is generally thought to take its name from actual or probable murder there done, or to be done. A writer in *Notes and Queries* says,—In Stanford's large map of London, 6 inches to the mile—of which I recommend every one to get his own district at least—the scale allows these by-lanes to be named. I find "Cut-throat-lane" in one case, and "Cut-through-lane" in another: surely the first has been the second, and is but a corruption of it. Another corruption has given the name of Chalk Farm to a spot which the adjacent lump of clay called Primrose-hill proves to have been without chalk since the days of Professor Owen's pets with the hard names. The old village of *Chalcot* is the source of the name. The Board of Works having merged Chalcot Villas in the Adelaide-road, to my great convenience; no testimony to the old name remains on the spot. This note will make future readers of "N. & Q." as wise as if they had consulted Camden, whose maps would show them both Upper and Lower Chalcot.

The Sea and the Drainage at Brighton. In the course of a lengthened report on this subject, the *Lancet* states that from a series of microscopical and chemical examinations of the sea and well waters of Brighton, conducted by Dr. Dundas Thomson, F.R.S., it is apparent that the sea, precisely at those parts at which bathing is carried on, and along the front of the best parts of the town, is deeply polluted by sewage matters of the foulest description. Fully three-fourths of the town of Brighton are drained into cesspools in the porous chalk, and the soil is so infiltrated that the pump and well waters contain unoxydized and crude sewage matters. One-fourth of the town is drained into the sea off the Old Steyne and opposite Waterloo-street, polluting the waves over an extent of hundreds of acres. A method of drainage may be completed within twelve months by which the whole sewage of the town may be carried for three miles to the east, and utilized for agricultural purposes, or then carried out to sea. The former alternative is strongly recommended. The death-rate of Worthing is considerably less than that of Brighton, notwithstanding the two towns are so closely adjacent.

The Architectural Association.—The association will open their session on Friday, the 31st instant, with a *conversazione*. Music is to be a feature.

The Additional Lunatic Asylum for Surrey.—A recommendation of the committee of visitors, that the surveyor's plans and estimates submitted, amounting to 80,000*l.*, should be approved, has been agreed to by a majority of nineteen magistrates to nine against it. It was also then agreed that a sum, not exceeding 80,000*l.*, should be raised by the Finance Committee in the usual way.

Terrible Railway Accident in Scotland. Our readers will have already heard of the fearful accident which happened on the Edinburgh and Glasgow Railway, near Winchburgh, about fourteen miles from Edinbugh; when eighteen persons were killed and 150 wounded. The accident occurred at a cutting where there was only one line of rails; and the pointsman, who is said to have been taken on only a few hours before, and seems to have had no one with him as instructor, mistook one train for another, and allowed a passenger-train from Glasgow to run into another passenger-train from Edinburgh. The setting apart of one engine only to go to and fro on such a single line would prevent the possibility of such accidents.

Sanitary Condition of Aberavon.—Illness is very prevalent among all ages in this place, says the *Cambrian*, especially among children, scores of whom have been and are suffering from measles. Many attribute the rifeness of fevers in the lower parts of the town to the filthy condition of the streets and lanes. Since this wet weather has set in the heaps of dirt and offal that were permitted to accumulate in every corner have been swept along the roads, rendering the before filthy mass of corruption, in short, a slough of despond. This is the state of things at the end of the first year's mayoralty, under the new charter of incorporation. Some legal "hitch" is as yet in the way of effecting improvements in the town; but surely, for the sake of decency, something ought to be done to cart off the filth which blocks up the lanes and by-ways.

Land Compensation.—An inquiry regarding a claim for land compensation at Plymouth, which commenced on Wednesday last, was concluded on Saturday. Mr. Drake was assessor. Mr. Lloyd and Mr. Johnson appeared for the applicant; and Mr. Hawkins, Q.C., and Mr. Hannen, for the War Department; it being a question of fortifications. The residence, Brookland House, and the land, have been many years in the family of Mr. Gennys. The property is situate two or three miles north of Plymouth. The amount claimed was 45,000*l.* The Government in the first place offered 20,000*l.*, and was, it is said, prepared to compromise before going to a jury. The amount awarded was—for the house and gardens, 4,000*l.*; compensation for severing a stream of water, 2,000*l.*; for absolute purchase and compensation for clearance rights, 25,158*l.* 10s.; total, 31,158*l.* 10s. The land absolutely taken is about 98 acres. The clearance rights are exercised over 166 acres. Mr. Gennys made a claim for increased value on account of mining royalties, but it did not appear to have much weight with the jury. One Plymouth architect valued the building land at 300*l.* per acre; another at 275*l.*

Architectural Society of Durham and Northumberland.—This association, recently founded at Durham, has just held its third and final meeting for the present year at Bishop Auckland. The members proceeded to Auckland Castle, where the Bishop received the party. Mr. W. S. Gibson read a paper on the "History and Architecture of Auckland Castle," in the great drawing-room of the castle. The paper gave a comprehensive sketch of the history of Auckland Castle, and of the changes which the edifice had from time to time undergone; and embraced anecdotes of the great bishops of former days who are connected with its architectural history. Every part of the castle was opened to the visitors; and they inspected the ancient chapel and several parts of the castle to which Mr. Gibson had directed attention. The members afterwards had luncheon in the great dining-room, when about fifty gentlemen sat down. The Bishop, in responding to a vote of thanks, took occasion to remark on the injury which many ancient edifices had suffered from ignorance of Church architecture on the part of clergymen; and on the great advantages which might be expected to result from the establishment of a society like the present. On leaving the castle, some of the party proceeded to inspect the old parish church of St. Andrew, Auckland.

The Cheltenham Surveyorship.—The local Improvement Commissioners have elected Mr. D. J. Humphries as their surveyor, *vice* Mr. H. Dangerfield, incapacitated by illness. Mr. Humphries was vice-chairman of the board, and resigned that post to become a candidate. Only 14 out of the 30 members comprising the board were present. There is a feeling against honorary members of a board stepping down into the position of one of its paid officers.

St. Paul's: very likely. — A daily paper says that a Danish visitor to St. Paul's Cathedral, glancing at the words,—"*Si monumentum quæris, circumspice*," which terminate the inscription in honour of Sir Christopher Wren, believed them to embody in English a judgment on the merits of the building and the mortuary sculptures which it contains; and read them thus;—"Ze monument am queerish, kirk am spicy." What has become of this inscription, by the way?

Iron and Steel direct from the Ore.—In the conversion of cast, pig, or other iron into steel, Messrs. Gardner, of New York, propose to subject it, when in a molten state, to the combined action of crude potash or other alkali, carbonate of lime, oxide of manganese, and charcoal. The invention also consists in the purifying or refining of the iron preparatory to such process of conversion, either during its reduction from the ore in a smelting furnace, or during a subsequent melting by the use of ores of zinc, or the pure metal (zinc) itself, and of jets of steam or water. By means of these improvements steel may be manufactured directly, or by a continuous process, either from the ore or from pig-iron.

The Lendal Bridge at York.—The Bridge Committee have reported on the cost of this bridge, as given in a report by Mr. Page, the engineer employed to superintend the alteration and completion of it since the fall of the lattice girders. The committee state that Mr. Page estimates the probable cost of the alteration of the bridge, when complete, to be 10,477*l.*; while his original estimate was 8,800*l.*, with 900*l.* for contingencies, making the total estimated cost 9,700*l.* The reason of the excess, as given in Mr. Page's report, was the unexpected alteration required in the foundations, the substitution of stone facings in the approaches, the employment of cement for lime in the walls, and the improved subway to the North-street Postern. The total cost of the bridge has been about 34,000*l.*, subject to a deduction of about 1,000*l.* on sale of materials. The report has been adopted by the council.

Fall of a Floor in Rochdale.—A fatal accident, caused by the fall of a warehouse floor in the Banner, Rochdale, has deprived three men of their lives, and about six or seven others have been severely crushed. A sale by auction was going on in the third story. On the floor of this room, with other machinery, stood a carding engine, weighing about three tons, and a scutching engine of considerable weight. About eighty persons assembled in the room; and, while the sale was proceeding, without giving any warning, a portion of the floor under the engines, about 27 feet square, gave way, and broke through the second and first flooring into the cellar, burying a number of persons in the *débris*, while others escaped with severe bruises. Twenty or thirty persons, who still remained on that portion of the third floor which did not give way, were rescued from their perilous position with the aid of the fire-escape.

The Birmingham School of Art. — At a meeting of the council of this institution the eighth annual report has been received. It should be understood that, owing to a want of funds and other causes, the council have been compelled to retire from action, not, however, before the hon. secretary, Mr. C. B. Mander, had sustained serious pecuniary loss. In order, nevertheless, to prevent the extinction of so useful an institution, Mr. Loveridge and others have liberally come forward as guarantors for any deficit which may arise, and have determined, under a new committee of management, to reopen the school, and again give the public an opportunity of evincing their sympathy with the objects of the institution. The report of the council now assigned as the reasons why the school must be of necessity closed, that it had not received adequate local support; and that it had been refused that aid from the Science and Art Department which, looking at what was extended to schools in other towns, they had a right to expect. The report was adopted. It will be a perpetual disgrace to Birmingham if such a town allow its School of Art to be closed from want of adequate pecuniary support.

The Randall Fountain at Maidstone.—This work of art, by the late Mr. John Thomas, and of which we gave an engraved view on 20th September last, is now nearly completed. The sculptures representing the four archangels have been placed in their positions. The Local Committee of Pavement Commissioners have called a public meeting to decide whether the Water Company shall be allowed to put on their water at one of the sides.

The Model Lodging-house, George-street, Bloomsbury.—We have received a statement of objections to the present management of this house from a lodger, who has been ejected for "making complaints and interfering with the management." Some of the objections, if correct, certainly call for the attention of the important society to whom the house belongs. Another tenant, referring to the improvements which, as he says, followed the observations made by us about two years ago, and asking for further interference on our part, seems to confirm the first correspondent.

Albert Memorials.—At Hastings, final arrangements have been made with Mr. Stirling, the contractor, for completing the clock tower to be built as a memorial of the late Prince Consort. The site has been marked out at the Priory Obelisk, and the work will be at once proceeded with. Most of the work will be done under a sub-contract by Hastings tradesmen. —— The Royal College of Surgeons in Ireland have just received a marble bust of the Prince from the studio of Mr. Theed. The likeness is an exact counterpart of the last bust of his Royal Highness now in the possession of her Majesty, and by the same artist; her Majesty having permitted the college to obtain a copy of it.

Mr. and Mrs. German Reed's Entertainment.—The Gallery of Illustration is announced to close on the 12th of November. Though, to meet the special requirements of the Great Exhibition year, the season has been unusually long, its success, we are glad to hear, has been very great indeed; and large and numerous audiences still testify to the merit of the entertainment by their loud and prolonged laughter and applause. In the "Family Legend" Mr. Reed has skilfully introduced the attraction of dramatic effect without sacrificing the refinement and characteristic features which essentially belong to this class of amusement. The Family Legend, which is beautifully got up as regards scenery, continues to be followed by Mr. Parry's Musical Narrative of a Colleen Bawn.

Monumental.—The trustees of the Green Coat School, Hertford, have erected in the parish church a marble monument, to record the gift by Mr. Daniel Costeker, of Stratford, Essex, of 40*l.* per annum for ever, to enable the trustees to provide for the clothing and education of an increased number of children belonging to the town, on condition of the trustees maintaining his mother's tomb, in the churchyard of All Saints', in good repair for ever. The monument consists of a plain Gothic arch, with pilasters of dove-coloured marble. Within the arch is a scroll, and between the pilasters a panel, all of white marble, and the whole resting on a base, with ornamental Gothic trusses or corbels.——A monument, with an inscription by Mr. W. S. Landor, has been erected at Venice over the grave of Mr. G. P. R. James, the novelist.

The Preservation of Embankments.—Mr. Robert Scott Burn (who addressed a letter to the *Times* as "An Agricultural Engineer," recommending stopping the breach in the Middle Level Bank by gradual deposition of materials from the stream in open interlaced cradles) has a paper in the last number of the *Journal of Agriculture*, "On Embanking Lands from Seas and Rivers," illustrated by diagrams, and in which paper he says;—"The formation of embankments is in one sense a much easier thing than the keeping of them in perfect repair when made; although this is by no means the popular view of the subject, as witness the remarkable indifference of the Middle Level Commissioners to the first inroads of the water. They might have learned a lesson as to the value of immediate prevention from the story with which surely all are familiar,—of a little lad who, watching on one of the embankments of Holland, saw with dismay the water making its way through a tiny aperture in the bank; but knowing well the rapidity with which it would operate, and that no time was to be lost, thrust his little hand and arm in the gap to stop the flow, and lay there all the livelong winter night exposed to the biting blast till help came in the morning. That little boy's hand possibly saved a province from destruction."

Ventilation of Collieries.—In the course of a very interesting article on Fuel in the International Exhibition, the *Times* says, —The ventilation of collieries is a matter of vast moment. The circulation of the air is determined either by the direct agency of heat, on principles which we must assume are generally understood, or by machinery acting by propulsion or exhaustion. An instructive model of a ventilating furnace in use at the Hetton Colliery, under the direction of one of the greatest practical colliery workers of the day, Mr. Nicholas Wood, is shown under No. 413. Nixon & Co. exhibit drawings of a mechanical ventilating apparatus, No. 251, which, if we understand them correctly, consists essentially of two gigantic pistons, working alternately, each in its own chamber. Mr. Struvé, the present manager of the great Cwm Avon Works, many years ago devised and constructed an exhausting ventilating apparatus, of which the efficiency and value have been amply established by long practice. We have seen this apparatus at work at the colliery between Swansea and Llanelly, under the management of Mr. Struvé, and it appeared to work most satisfactorily. Recently a large apparatus on this principle has been erected at an extensive newly won colliery in North Wales. A furnace at the bottom of a shaft is in general a thoroughly efficient and very economical method of promoting ventilation; but there are circumstances in which it may become a source of great danger. We all remember the terrible calamity at the Lundhill Colliery, where a fire suddenly broke out in the pit, arising from the ventilating furnace, and cut off a large number of unfortunate victims from access to the shaft. It was impossible to reach them, and it was essential to extinguish the conflagration. This could only be done by deluging the pit, so that if any survived beyond the scene of the fire they would certainly be drowned. Even in one of Mr. Nicholas Wood's collieries—and no pits in the world can be conducted with greater care and with a more earnest desire on the part of the proprietors to insure the safety of their colliers—an explosion attended with considerable loss of life occurred not long ago, which, if we mistake not, would not have happened if there had been no ventilating furnace. But these observations must not be taken in disparagement of ventilating furnaces. We have heard a great deal of late about the necessity of double shafts, and the expediency of abolishing by legal enactment single bratticed shafts. The attention of the public to this point was excited by the horrible catastrophe at Hartley. But something might be said about the state of the underground workings in certain collieries, which are as fertile a source of danger as any single shaft can possibly be.

TENDERS.

For works at Grove Hall Lunatic Asylum. Mr. James Tolley, architect:—

Watts	£552 0 0
Hedges	525 0 0
Ennor	499 0 0
Hack & Son (accepted)	497 0 0

For new dwelling-house, Penshurst, Kent. Mr. T. J. Hill, architect. Quantities by Mr. Barnet:—

Coleman	£1,500 0 0
Sewell	1,498 0 0
Henshaw	1,465 0 0
Timewell	1,346 0 0
Constable	1,330 0 0
James & Ashton	1,177 0 0

For alterations and additions to Mr. Ingold's premises, Whetstone. Mr. G. W. Denham, architect:—

Mann	£221 0 0
Simmonds	178 0 0
Richards	147 0 0
Lewis	129 0 0

For alterations, additions, &c., to premises, Milk-street, City, for Mr. Taylor. Messrs. Tillott & Chamberlain, architects:—

Wills	£1,255 0 0
Myers & Sons	1,250 0 0
Piper & Wheeler	1,171 3 0
Woodward	1,118 0 0
Cannon	995 0 0

For fittings, &c., at premises, Newgate-street, for Mr. Franz Steigerwald. Messrs. Tillott & Chamberlain, architects:—

Foxley	£995 0 0
Henshaw	962 0 0
Piper & Wheeler	945 0 0

For mahogany fittings, &c., for the Lord Palmerston Tavern, Hampstead-road. Mr. T. Muncey, architect:—

Duncanson & Moultrie	£398 0 0
Selleck	303 0 0
Simmonds	239 0 0

For two shop-fronts, Notting-hill. Mr. T. Muncey architect:—

Selleck	£143 0 0
Duncanson & Moultrie	120 0 0
Simmonds	98 0 0